TARTU UNIVERSITY
Institute of Finance and Accounting

ACCOUNTING AND COMPANIES' PERFORMANCE MANAGEMENT

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CONTENTS

TRUE AND FAIR VIEW: THE CORNERSTONE OF MODERN ACCOUNTING

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One of the most famous aspects of British accounting probably is the concept of the ***true and fair view*** (*TFV*), which in company law is the objective of the annual accounts (financial statements). The achievement of other rules may in theory be set aside. The overriding British legal requirement for financial reporting of giving a *true and fair view* has been exported to many countries, initially Commonwealth countries, but later to Continental Europe via the European Community's (EC) Fourth Directive on Company Law[1].

1. Highlighting the *True and Fair View* in the Fourth Directive, IAS 1 and Estonian Accounting Act

The obligation to give a ***true and fair view*** has been declared to be overriding by IAS 1, Fourth Directive and Estonian Accounting Act. It means that *TFV* can be used to override the law and standards. The exact wording of paragraphs related to the concept of *TFV* is shown in table 1.

Some comments on table 1:

1) **The Fourth Directive** imposes the overriding requirement that the annual accounts (financial statements) present a *true and fair view*. In most cases it would be expected that complying with the requirement of the law would be sufficient. However, it may be necessary for companies to disclose more than the minimum specification in order to present a true and fair view. On relatively rare occasions, companies may have to depart from the requirements of the law in order to give a *true and fair view*. That is permissible but must be explained in the annual report. Article 2 of the Fourth Directive dealing with *true and fair* has been implemented in substantially different ways in the UK, France and Germany. Its later interpretation, both in terms of the wording of resulting national legislation and, even more importantly, in terms of the philosophy of interpretation applied to it in practice in the various EU member states, has been varied greatly.
2) **The IASC** framework does not include a discussion on the concept of *true and fair* but it asserts that the application of the principal qualitative characteristics and of appropriate accounting standards normally results in financial statements that convey what is generally understood as a true and fair view. The framework gives "presenting fairly" as equivalent wording.
3) **In Estonian legislation** the UK view has been implemented, which states that the "true and fair" stands above any specific set of rules. It is obligatory to deviate from the law in cases in which the application of other provisions of the law do not meet the requirements of this general clause. What is lacking is guidance on the criteria to define such a "true and fair view", and to recognise when it is lacking. The *true and fair view* is an Accounting Act concept and is therefore a **legal notion**. However neither the Acts nor the courts have ever attempted to define it[2].

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[1] The concept of a *true and fair view* was adopted by the EEC Council in its Fourth Directive in 1978.
[2] Interpretation of *true and fair* in Estonian language is discussed in section 5.

Table 1. Comparison of highlighting the *True and Fair View* in the Fourth Directive, IAS 1 and Estonian Accounting Act

Article 2 of the Fourth Directive	IAS 1	Estonian Accounting Act
3 The annual accounts shall give a true and fair view of the company's assets, liabilities, financial position and profit or loss. 4 Where the application of the provisions of this Directive would not be sufficient to give a true and fair view within the meaning of paragraph 3, additional information must be given. 5 Where in exceptional cases the application of a provision of this Directive is incompatible with the obligation laid down in paragraph 3, that provision must be departed from in order to give a true and fair view within the meaning of para-graph 3. Any such departure must be disclosed in the notes on the accounts together with an explanation of the reasons for it and a statement of its effects on assets, liabilities, financial position and profit or loss.	**Fair Presentation and Compliance with International Accounting Standards** 10. Financial statements should present fairly the financial position, financial performance and cash flows of an enterprise. 13. In the extremely rare circumstances when management concludes that compliance with a requirement in a Standard would be misleading, and therefore that departure from a requirement is necessary to achieve a fair presentation, an enterprise should disclose: (a) that management has concluded that the financial statements fairly present the enterprise's financial position, financial performance and cash flows; (b) that it has complied in all material respects with applicable International Accounting Standards except that it has departed from a standard in order to achieve a fair presentation; (c) the Standard from which the enterprise has departed, the nature of the departure, including the treatment that the Standard would require, the reason why that treatment would be misleading in the circumstances and the treatment adopted; and (d) the financial impact of the departure on the enterprise's net profit or loss, assets, liabilities, equity and cash flows for each period presented. 15. A fair presentation requires: (a) selecting and applying accounting policies in accordance with paragraph 20; (b) presenting information, including accounting policies, in a manner which provides relevant, reliable, comparable and understanable information; and (c) providing additional disclosures when the requirements in International Accounting Standards are are insufficient to enable users to understand the impact of particular transavtions or events on the enterprise's financial position and financial performance.	Section 5 states that financial statements prepared on the basis of recorded transactions shall present a true and fair view of the accounting entity's assets, liabilities, owners' equity and profit (loss) for the financial year, based on the internationally recognised accounting principles. Section 18 states: (4) Financial statements shall present a true and fair view of the accounting entity's assets, liabilities, owners' equity and profit (loss) for an accounting period. (7) Where in exceptional cases, a provision of this act is contradictory to the requirements provided for in subsection (4) of this section, such provision shall be departed from in order to give a true and fair view of an accounting entity's assets, liabilities and owners' equity. A detailed explanation of the reasons for any such departure shall be disclosed in the notes to the financial statements.

2. Development of the *True and Fair* concept

The legal requirement for UK balance sheets and income statements to give "true and fair view" dates from the Companies Act 1947 (consolidated into the Companies Act 1948), replacing earlier references in Companies Acts from 1844 onwards to *full and fair* and *true and correct*. The change of wording is shown in table 2.

Table 2. Extracts from British Companies acts[3]

Year	Words in Companies Acts
1844	... the Directors ... shall cause ... a **full and fair** Balance Sheet to be made up ...
1862	The Auditors shall make a Report to the Members upon the Balance Sheet and Accounts, and in every such Report they shall state whether, in their Opinion, the Balance Sheet is a **full and fair** Balance Sheet, containing the Particulars required by these Regulations, and properly drawn up so as to exhibit a **true and correct View** of the state of the Company's affairs ...
1879 (banking companies)	The auditor or auditors ... shall state whether, in his or her opinion, the balance sheet ... is a **full and fair** balance properly drawn up, so as to exhibit a **true and correct view** of the state of the company's affairs, as shown by the books of the company ...
1900	... the auditors ... shall state whether, in their opinion, the balance sheet ... is properly drawn up so as to exhibit a **true and correct view** of the state of the company's affairs, as shown by the books of the company ...
1948	Every balance sheet of a company shall give a **true and fair view** of the state of affairs of the company as at the end of its financial year, and every profit and loss account of a company shall give a **true and fair view** of the profit or loss for the financial year.
1985	The balance sheet shall give a **true and fair view** of the state of affairs of the company as at the end of its financial year; and the profit and loss account shall give a **true and fair view** of the profit or loss of the company for the financial year.

True and correct was changed after advice from the accountancy profession that *correct* was too precise a word to reflect the practice of accounting and auditing. The word *fair* was seen as an improvement on the then current *correct*, partly because it was more easily distinguishable from *true* and would stress the need for judgment.

☞ While the term *true and fair view* originated in UK company law, UK law does not spell out what the term means. There is no definition of the phrase 'a true and fair view' although much has been written about it.

[3] Data used in table 3 are mostly taken from research of Parker and Nobes (Parker and Nobes, 1994). Expressions are made by the author of this paper.

3. Interpretation of the *True and Fair* concept

The idea of *true and fair view* is on a high level of abstraction. The meaning of TFV has been discussed elsewhere from several points of view. Implementation of the true and fair concept has been interpreted in different ways in different countries, both **linguistically** and **philosophically**.

Investigation and discovery of anything is assisted by breaking down or classifying the thing into parts. Let's breakdown *true and fair view* into parts, beginning with *true*.

3.1. Truth

In practice the word *true* is difficult to pin down as it also incorporates a high level of abstraction. However in accounting terms we can consider synonyms like – *in accordance with fact or reality*; *not false or erroneous*; *representing the thing as it is*. Numerous items can be seen in this light.

Example. "*Land* ... at the cost of 1 500 000 EUR". It is either true or false that:

- *land* exists;
- *land* is the property of the company who holds a good title;
- *land* did cost the company 1 500 000 EUR;
- all the land belonging to the company is included.

On the other hand, the matter may not be as simple as it seems:

- good title may be a matter of opinion;
- historical cost may be a matter of opinion – are legal costs included? Subsequent costs (drainage, fencing) may be considered capital or revenue etc.

☞ According to Cosserat *truth* refers to the correctness of those matters capable of being determined with precision, such as the balance of cash at bank (Cosserat, 2000, p. 586).

3.2. Fairness

Fair view or *fairness* include many elements:

1) **Relevance.** The financial statements report on historical events. They are not intended for decision making even though they may be used for this purpose.
2) **Objectivity** – consisting of externally verifiable facts, rather than subjectively considered opinions.
3) **Freedom from bias**. The producer of financial statements should not allow personal preferences to enter into their statements preparation work. For example, a desire to show a favorable profit should not influence a manager's assessment of the expected life of fixed assets, or the saleability of inventory.
4) **Beyond simple conformity**. Users of financial statements expect them to conform to GAAP. However a simple rigid conformity can cause a misleading view. For example inclusion of profits from overseas branches may mislead shareholders when those profits are not available to shareholders because of exchange control restrictions.
5) **Disclosure**. Accounting is an aggregating and summarising process. Thousands of transactions are summarised annually in relatively few lines in a set of financial statements. The aggregating transactions and balances in suitable classes or categories can only be appreciated. For example, a list of 5000 balances in sales ledger has little value for an investor, but *debtors* (*accounts*

receivable) 2.1 million EUR is useful as it can be compared with previous years, sales, other figures in the financial statements etc. Too much disaggregation causes confusion between the wood and the trees and general indigestibility. On the other hand too much aggregation can hide individual figures or subclasses that ought to be properly disclosed.

6) **Materiality**. The elusive accounting principle of materiality is intimately bound up with the *true and fair view*. An item is material if its disclosure or non-disclosure would make any difference to the view received by the user of the financial statements. Fairness is therefore a function of materiality. For example, a clerk in a company embezzled 70 000 EUR and this sum proved irrecoverable. The company did not wish to disclose this loss separately as it was not material as the profit was over 3 000 000 EUR. The auditor might argue that disclosure would change the view given by the financial statements as shareholders might then have doubts about the management's ability to controll the company's affairs and shareholders might also wish to know company policy on prosecuting offenders of this sort.

3.3. True and Fair

It is useful to attempt to draw distinction between ***truth*** and ***fairness***. The easiest way of doing this is to use a simple example, that of window dressing. Window dressing takes place when a company undertakes a transaction with the primary intention of altering the appearance of its balance sheet. Since the transaction has actually taken place, and has been recorded, the view presented by the balance sheet could be considered to be *true*; that is, **in accordance with the facts**. However, it could not be said to be *fair*, that is representing a reasonable picture of the state of affairs of the company. For this reason, full disclosure of the nature of the transaction needs to be provided[4].

☞ The expression *true and fair view* is central to auditing. The auditors must report on whether the financial statements show a *true and fair view*. According to Parker and Nobes the auditors from UK, country of origin of the *TFV*, see *TFV* as dual: approximately, ***truth*** is taken to mean that the accounts are in **accordance with facts**, and ***fairness*** that they are not **misleading** (Parker and Nobes, 1994, p. 68).

The view expressed above is supported by a practitioner who has declared that "even 20 years ago [the early 1970s] ... a leading auditor would not have had any difficulty in saying what true and fair view meant. "True" was intended to convey the essence of "correct", without pedantic accuracy, while "fair" recognised that a true statement may nevertheless give a misleading view." (Fowle, 1992, p. 29).

[4] One possible way of distinguishing operationally between truth and fairness (which is not discussed herein) would be to report truth (i.e. the form) in the financial statements and to add fairness (i.e. substance) in the notes.

Other expressions of accounting professionals:

1) *True* means that the accounting information contained in the financial statements has been quantified and communicated in such a way as to correspond to the economic events, activities and transactions it is intended to describe. ... *Fair* means that the accounting information has been measured and disclosed in a manner which is objective and without prejudice to any particular sectional interests in the company (Lee, 1986, p. 51).
2) Sir David Tweedie sees statutory prescription (truth) as a first stage, to be followed by stepping back and considering the impression given by the financial statements: "Truth alone is not enough – truth can still give a misleading impression if presented in an appropriate context" (Tweedie, 1983, p. 16).

Financial statements will not be *true and fair* unless the information they contain is sufficient in quantity and quality to satisfy the reasonable expectations of the readers to whom they are addressed. *TFV* is the ultimate objective, which implies the need in certain circumstances to override other legal provisions.

Examples:

1) The application of tax-driven accelerated depreciation charges against profit is not "fair", but could be "legal".
2) Valuing inventory, sold after date at a profit, at cost **gives** a *true and fair view*, valuing damaged inventory, which can only be sold at a loss, at cost **would not give** a *true and fair view*.

According to research carried out among auditors by Parker and Nobes, several respondents volunteered that *fair* is more important than *true*; none suggested the reverse. It means that providing a *true and fair view* is understood to imply that **economic substance should prevail over legal form**.

4. Interpretation of the *True and Fair* in the Fourth Directive and national legislation

It has been suggested that there is a range of positions on the meaning of *true and fair view*. For example, in the UK and Ireland, it may be used by companies to justify overriding the specific requirements of the law. In Germany, it is clear that the idea of a *true and fair view* cannot be used to override the requirements of the law. Between these two extremes lies a range of interpretations in various states.

Table 3. *True and Fair* signifiers in the Fourth Directive and national rules (translations from origin)

Requirement	The Fourth Directive (language)	National legislation (country)
Dual		
True and fair	English	UK, Ireland
True and correct		Italy
True and appropriate		Portugal
Right and sufficient	Finnish	Finland
Unitary		
According to facts	German (1978)	Germany
Faithful	Danish, Dutch, French, German (1974), Italian, Portuguese, Spanish	France, Belgium, Luxembourg, Spain, Netherland
Real	Greek	Greece
Right-looking (not misleading)		Denmark

Table 3 highlights the differences in the *TFV* signifiers in the Fourth Directive and national rules.

5. Interpretation of the *True and Fair* in Estonian language

Estonian accounting legislation includes the *true and fair view* (*õige ja õiglane kajastamine*) concept since 1995. According to the Estonian Accounting Act the management of the company must declare separately that company's annual report has been prepared in accordance with ***good accounting practice*** and gives a ***true and fair view*** of financial position and results of operations of the economic entity[5].

If in the countries of EU the implementation of the *true and fair view* into legislation was accompanied with dispute about its origin and meaning, in Estonia no interpretations have been offered. Since it came into force in 1995, there has not been concern in Estonia about how to interpret the *true and fair view* formula and about its actual consequences. Even the linguistical aspect (is "õige ja õiglane" the best translation of *true and fair*?) has not arosed any attention. Thus into Estonian regulations was dropped a concept (or to be more exact, a wording) **unknown to our legal tradition** and basically not rooted either – at least in these terms – in that of the Continental Europe. Therefore it is not surprising that for the Estonian accounting professionals the Estonian surrogate of the *true and fair view* as well as its british origin are empty wordings only.

Estonian ***õige ja õiglane*** *(kajastamine)* is a direct equivalent of Finnish ***oikeat ja riittävät*** *(tiedot)* or ***oikea ja riittävä*** *(kuva)*. "Õige ja õiglane" does not mean *true and fair* in as much as "õige" means "right" and is not synonymous with "true" as well as "õiglane" is not synonymous with *fair* in this context. *True*, in the context of the Fourth Directive and IASs, can be better translated with the word "tõde" or "tõene",

[5] The original wording is followed.

rather than "õige". In the context where the phrase *true and fair view* had its origins (Britain), significant weight rested on the **fairness** of financial reporting which indicated "correctness" and "good faith" above and beyond observance of formal rules.

There is no such word in Estonian which would have so many different connotations as *fair* in English. Opinion of the author of this paper is that the best (most exact) translation of *true and fair view* into Estonian is "tõene ja aus kajastamine" or "tõene ja erapooletu kajastamine", where "aus" and "erapooletu" express the necessity for good faith in the legal sense.

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Abstract

The purpose of this paper is to explore the ***true and fair view*** (***TFV***) which has been declared to be overriding by IAS 1, Fourth Directive and Estonian Accounting Act. This paper discusses the highlighting of the *TVF* in IAS 1, Fourth Directive and Estonian Accounting Act, interpretation of the *TFV* by the accounting professionals and the apparently false start of ***õige ja õiglane*** (widespread Estonian counterpart of *true and fair*) made in the Estonian Accounting Act.

THE PROBLEMS OF ACCOUNTING INFORMATION IN THE FINANCIAL ANALYSIS OF ACCOUNT STATEMENTS

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The finances of a firm represents flows of capital (as a source of assets) and of its monetary means. The maximum market value of the firm is the main target in the long term. The firm must at the same time ensure its payments. The capital of the firm is the „energy" which enables the firm to carry on its activities. A lot of the capital depends, first how long the firm needs to use its assets to carry on its activity.

The basis of financial management consists of obtaining capital, its allocation and dividing the profit. Accounting, calculations, budgets, and financial analysis are important instruments of management; they record, analyse and control the economics of every activity of the firm.

Financial management is closely connected with the economic environment in which the firm exists, also with the day to day running of the firm and with the character of its targets. The targets of all subjects, taking part in the firm´s activities, are not the same and they can make a conflict of the interests. For example management can give priority to the short-term results according to its estimates, rather than the long-term success of the firm which owners prefer. Employees can request a distribution of all surplus which the firm has produced above all in their favour.

Financial and investment decisions of the firm are influenced by two factors: the time factor and the risk factor. These factors contributed to the „construction" of rules for financial decisions of managers.

Financial analysis became a necessary tool of financial management in recent years. Two basic methods are used in the evaluation of financial performance and the situation of the firm: fundamental analysis based on quality data and technical analysis based on quantity data, mathematics and statistics methods. Selection of the same firms, a preparation of data and indicators and a verification of assumptions about the indicators usually precede the technical analysis. The firm´s own technical analysis can be carried out according to the demands of the management of the firm on a basis of elementary methods.

Accounting provides primary basic economic information for financial analysis. The information from external resources, especially about the market value of assets and liabilities are entered into the financial analysis together with the accounts information. Accounting records the immediate state of the assets and liabilities of the firm in purchase (historical) prices in the Balance, respectively costs and sales in the Statement of Profits and Losses in the evaluations of the given period.

1. The basis of book keeping

The main principle of accounting is a fair and true representation of reality. To this purpose the accounting standards (norms and procedures of a book-keeping) are used.

They unite a presentation of the state of assets and liabilities of firms and the results of their management. The firm´s own book keeping policies are regulated by legal accountancy regulations. For example caution in the evaluation of future risks can be motivated by the desire to obtain credit for future business endeavours or conversely negative results can cause shareholders to lose dividends.

2. Evaluation

The various ways of evaluation of the assets of the firm and its financial resources can influence a quality of the accounts information. We think about the influence of the policy of depreciation on investment assets when we evaluate the blocking of monetary resources in assets. Also we think about the evaluation of the materials and goods which depend on the method chosen by the accounts evidence of the changes in the stock-department. The evaluation of uncompleted production and completed products depends on which methods of cost-calculation where used. The principle of caring presents profits and losses differently. Two sub-principles are a component of the principle of caring. They are:

1. The principle of realization which presents sales only in cases where the legal claims arise out of refunds for products. That´s why an increase of the market price of the asset (a security) cannot be considered for sales, if it is not realized (sold) on the market. It follows from the principle of realization, that maximum value is given for the evaluation of the blocking of the asset by its historical price.
2. The principle of imparity which admits a presentation of unrealizated losses, too. We don´t know the accurate amount of these losses, we don´t know the cost of these losses. Not inconsiderable dangeral so arises from it. In this case the silent reserves are produced.

Selection of the means of evaluation is the choice between careful and careless presentation assets and liabilities. This selection influences a presented economic result for a time period and the sum of its own capital, in other words the sum of its changes in the given period.

3. An actual conception of accounting

Accounting records on an on going basis, comprehensivle and systematically all economic transactions of the firm. It is oriented to the financial and economic situation of the firm, on its the means and sources, costs and sales (on its economic result).

Accounting can present periodically, the actually economic result of the firm; the property position and the financial position of this firm. The substance of an accrual conception of accounting is the record of an econom operating independently of the realization of payments. The time of realization of the flows of these payments is not substantial for the record, but it is added to the profit realization.

We take into account sales from the moment of the making out of an invoice, to the moment when it covers the supply of the product and the beginning of the legal claim for its refund. The claim occurs between the making out of the invoice and the receipt of the money. By the moment of realization in costs (for example of consumed material) is the moment of the consumption of the material, but this material can be

paid for before or after the moment of the consumption. Costs and sales are accounted in accordance with the principle of their relevant timely occurrance in the accounts period. That´s why timely differentiating of costs and sales must exist. In accounting all costs and sales stay in the sum to which they belong in this economic period.

The accrual accounts principle often makes a difference in the profit in the consideration of value in the Statement of Cash Flows. It requires a transformation of accounting information.

4. The influence of inflation

The accounting information doesn´t take inflation into account. The evaluation of long-term assets by historical prices leads to accounting depreciations being undervalued and accounting depreciations don´t prepare the neccessary means the renovation of an asset. After continued price growth the firm becomes poor or is even destroyed. We can notice something similar between the historical price and a reproducal price in the stores, too. In monetary means and claims, a decreasing of purchasing power worsens the liquidity of the firm. On the contrary the firm earns on its debts thanks to inflation. So the Balance of the firm doesn´t give accurate information about the firms value, it doesn´t reflect economic reality, either. The idea that the Balance is sett up on the principle of historical prices, is the statement of the present value of the assets and liabilities of the firm and that the Balance gives information about the actual result of the firm´s managing, is wrong.

5. The method of depreciating of long-term assets of the firm

The firm can choose the method of depreciation according to the decision of management: an accelerated method, a uniform one, a slow-motion one. On my opinion this fact influences the costs of the firm and the economic result of the firm gained in a given period. A category of the long-term small possession makes difficult comparison of firms, here we have the possibility of transferring its value to the costs: one-naturally at the moment of its acquisition or shortly after it has been in use for sometime.

6. The inaccessability of some information for the external user

In statements where the information is missing, which it doesn´t seem able to gather (as for example a daily consumption of material, costs blocked in uncompleted production, sales on business credit, debts after the deadline for paying etc.). This information can be used only by the internal users as the information for internal management provided by management accounting, as for example costs and sales of the products, of the economic centres, the economic results of these centres, the margins of the fixed costs and the creation of profit.

7. The past based on identified information

Accounts balancing is typical in that it characterizes the past, but information about the future would be more important. Accounts balancing doesn´t consist of factual substances to which they assign future expenses or influence future incomes (for example the state of ensuring a sale or the state of non-finished sales). The quality

information about the firm doesn´t show in the statements for example the loyalty of the customers, the situation on the market, the quality of management, lost contracts, the times for the paying of claims and debts, the product risks and sales risks etc. These information presents only difficulties or they are not balanced at all.

8. Influencing taxes

The information in the Statement of Profits and Losses corresponds with accounting procedures, but an aspect of tax law can be quite different. That´s why a difference arises between the economic result (an accounting profit) presented in the Statement of Profits and Losses and tax profit, which is subject to tax from incomes. Everyone of these categories has a different function and determination. The accounting result (profit) is the economic category which has to express (as soon as possible) and efficiency of the activity of the firm, while the tax profit is a legal category defined by tax rulings. The economic result before tax can be found in accounting is neccessary to modify besides in accounting, also according to the law about the incomes tax. The truth is that such costs which the firm has incurred above the limits set by law, thus influence its costs in accounting, but these costs would not be taken into account for the calculation of a basis of tax.

Summary

It is evident from the paper how it is important, that the accounting of the firm is accurate. First-rate financial analysis of the economic coefficients would have to follow after accounting processing of the information. These economic coefficients would have to serve as a component of the other in the decisions of the management for ensuring further development of the firm in a competitive market environment.

CONTROLLING IN INFRASTRUCTURE PROJECTS MANAGEMENT

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1. Introduction

Controlling, actually well known for years outlives its renaissance, and is treated as modern management concept covering planning, management and control of running economic processes.

Actions connected to process control, identification of deviations, inputting changes into worked-out plans and designs and monitoring of their execution are the base of controlling procedures.

A crucial role is played by controlling (strategic and operational) in project management.

2. The notion of investment

Generally an investment is understood as the costs beard today, which effects should be in future profits or other benefits. Various definitions are similar, and differences rely on their wider or narrower framework. So, investment is each activity, in which investor resigns from consumption of profits in place of increased profits in future[1]. E. Nowak argued that investment is an engagement of funds into economic undertakings with aim to multiply them through achieved incomes.[2]. Another definition constitutes that investment is a current giving up for uncertain future benefits, which should be awarded by respectively high rate of return. J.C. Francis argued that investments are money deposits for incomes creation pulling some risks and further „ *at the beginning require to bear some costs in exchange for uncertain future profits*"[3]. A.K. Dixit and R.P. Pindyck describe investments in similar way, like as act of immediate costs with hope for future awards. They distinguish three main feedback features of investments: (1) investment is partly or wholly irreversible (bearing sunk costs) (2) there is uncertainty of future profits, (3) there is some time delay –delay of commencing the investment can give more information about future, but certainty is never gained[4].

W. Hawranek and P.M. Berens in its definition do not limit effects from investing to profits, but they mention about benefits. This way they expanded a definition for unproductive investments, to which classical evaluation methods, based on future cash flows, cannot be used. In their opinion investments are long-term engagement of economic resources for future production and future net benefits with main aim to

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Pluta W., Jajuga T., Inwestycje. Capital budgeting – budżetowanie kapitałowe, Fundacja Rozwoju Rachunkowości w Polsce, Warsaw 1995, s.8; Dziworska K., Decyzje inwestycyjne przedsiębiorstw, Wyd. Uniwersytetu Gdańskiego, Gdańsk 2000, s. 10

[2] Nowak E., Pielichaty E., Poszwa M., Rachunek opłacalności inwestowania, PWE Warsaw 1999, s. 16

[3] Francis J.C., Inwestycje. Analiza i zarządzanie. WIG-Press Warsaw 2000. S. 1

[4] Dixit A.K., Pindyck R.S., Investment under Uncertainty, Princetown University Press, Princeton 1994, s. 3

transform liquid assets into production assets[5]. American economists F. K. Reilly and K. C. Brown extended definition of investment for each engagement of money for some period of time for future returns compensated to investor (1) time of engagement, (2) projected inflation rate, and (3) investment risks[6].

L. J. Gitman and M. D. Joehnk determine investment as *„simply each tool which demands money funds with hope to generate incomes, and/ or their value should be the same or bigger. An award from investment can be achieved in one of two forms: current incomes or extended value"*[7].

H. Gawron gives very extensive definition of investment, covering material, financial and functional aspects, passing that „investments can be described as:

1) Total activity connected with preparing and performing company development plans, mainly relied on creation of new, reconstruction and updating existed real assets, and various financial operations dealt by professional team,
2) The total financial costs connected with creation of new, reconstruction and updating productive and unproductive assets, and expanding through capital transactions (purchase of shares, deposits, etc.),
3) The source of increase of company capital in form of new or reconstructed machines and other equipment, transport means, construction objects, etc."[8].

3. Investment project management

In practice project means total activity with defined point of start and closing-up, clear aim, which has used some resources"[9]. (Exhibit 1).

Project is not a routine activity connected with current business. It needs separate organisation, and very often it is a composition of many tasks to fulfil which the comprehensive analysis, technical and technological assistance, current co-ordination and adequate material and financial recourses are needed.

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[5] Behrens W., Hawranek P.M., Poradnik przygotowania przemysłowych studiów feasibility. UNIDO W-wa 1993, s. 323

[6] Reilly F. K., Brown K.C., Analiza inwestycji i zarządzanie portfelem, PWE W-wa 2001, s. 29

[7] Gitman L. J, Joehnk M. D., Fundamentals of Investing, 7th Editon, Addison Wesley 1999, s. 3

[8] Gawron H., Ocena efektywności inwestycji, Wyd. Akademii Ekonomicznej w Poznaniu, Poznań 1997, s. 13

[9] Slack N., Chambers S., Harland Ch., Harrison A., Johnson R.. Operations Management, Financial Times. Pitman Publishing, London 1998, s. 588

Exhibit 1. Investment project cycle and its phases

INVESTMENT PROJECT		
	Pre-investment phase	Identification; Possibility study
		Preliminary choice; Prefeasibility study
		Auxiliary studies
		Feasibility study
	Investment phase	An assessment: Assessment report
		Negotiations, Signing the agreements
		Technical design
		Construction
		Pre-production marketing
		Training
	Operational phase	Starting in
		Reconstruction, restructuring
		Enlargement, innovations
		Identification, prefeasibility study

Source: W. Behrens, P. M. Hawranek, Poradnik przygotowania przemysłowych studiów feasibility, UNIDO Warszawa 1993, s. 10

Project is targeted to achieve planned effects (quality) in frame of projected time schedule (period of realisation) and assessed funds (costs). Basic elements of project are as follows:[10]:

- target: defined final effects, production capacity, products, quality, and time-absorption of production,
- complexity: number of tasks to achieve an aim,
- uniqueness: non-repetitive nature[11],
- uncertainty: time distance between planning and project performing,
- provisional character: interim needs to possess and use of resources, which after project closing are moved to another projects,
- life cycle: changing in case of project specificity and complexity.

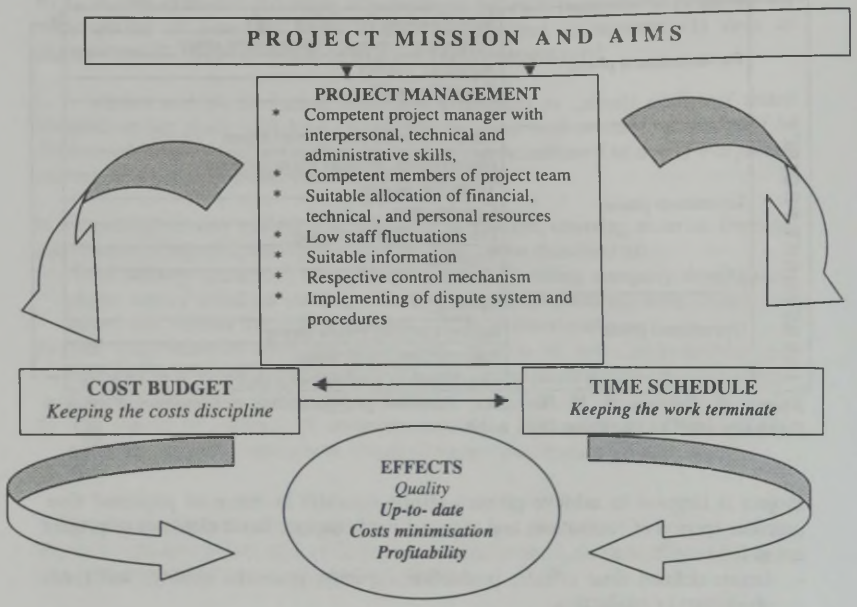
The success of project depends on quality, time and costs minimisation. A number of different problems and level of complexity force permanent project management (exhibit 2).

Projects can be classified differently because of assumed criteria, like as complexity, size, value, employment, costs, time quality, uncertainty. Planning of projects with high level of complexity has not always difficult, however it needs excellent skills and big outlays of work, but monitoring of their performance can bring a lot of problems effected from their scale. Planning of projects of high level of uncertainty is extremely difficult because of lack of sufficient information and varying environment conditions. If project details are changing during planning and operation process, than uncertainty to achieve the project aim is increasing.

[10] Slack N., Chambers S., Harland Ch., Harrison A., Johnson R. Operations Management, Financial Times. Pitman Publishing, London 1998, s. 590

[11] Even if there are „repetitive" projects, constructed in the same design or used the same technology differences of environment or accesses to resources have always occurred.

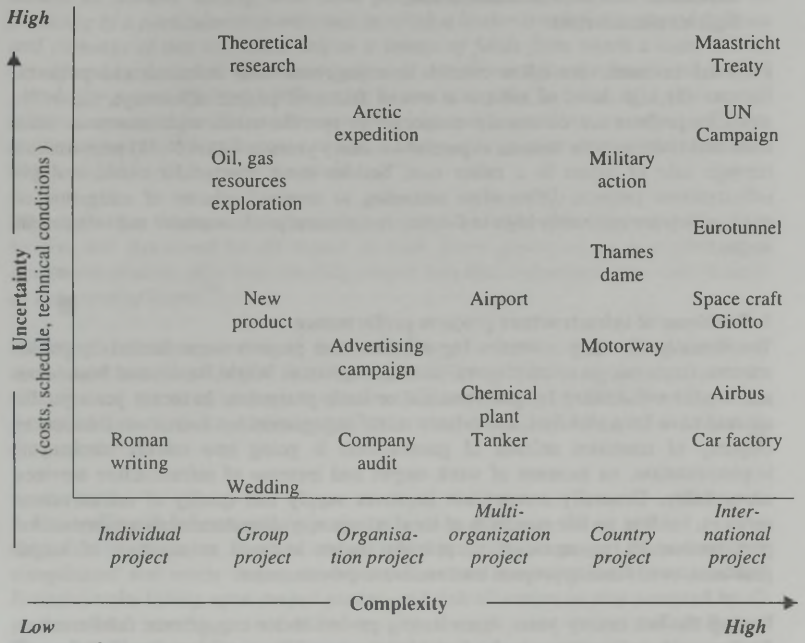
Exhibit 2. Determinants of project management



An interesting comparison of different types of projects, grouped according to size, level of uncertainty and complexity is presented in exhibit 3.

One can notice that infrastructure projects belong to projects of high uncertainty and complexity (airport, dame, motorway, and tunnel). The placing of infrastructure projects on uncertainty- complexity matrix is an effect of infrastructure features.

Exhibit 3. Investment project classification



Source: Slack N., Chambers S., Harland Ch., Harrison A., Johnson R., Operations Management. Financial Times. Pitman Publishing, London 1998, s. 591

4. Peculiarity of infrastructure projects

A specificity of infrastructure projects is their high capital absorption and long term of return. High capital absorption is correlated with necessity of bearing the considerable costs against expected results. Infrastructure projects are marked out of long cycle, technical impartiality, which influences on prolongation the period of achieving the full capacity and period of return. Long investment cycle and peculiar features increase high investment risks and causes on irreversibility of cost (sunk costs). Because of social nature of infrastructure investments, their position, size, type depends on political decisions and are receptive to political changes of public governments. The undertaking investment decisions not always supported by economic evaluation additionally increases investment risks. Then, to peculiar features of infrastructure projects can be considered :

- unique of investment,
- capital absorption,
- long investment cycle,
- high level of impartiality,
- costs irreversibility,
- long period of return,
- dependence upon political decisions,

- information asymmetry,
- difficulties with economic assessment,
- high investment risks.

Potential investors are often careful in engagement into infrastructure projects, because (1) high level of risks is a crucial factor of project efficiency;, (2) infrastructure projects are commonly connected to specific assets with enormous sunk costs and risky income streams expanded for many years in future [12], (3) privatisation through sale of assets is a rather rare, besides some spectacular cases, and (4) infrastructure projects differentiate according to assumed scheme of mitigation of risks, which are extremely high in the first two phases: pre-investment and investment stages.

5. Problems of infrastructure projects performance

Traditionally till early seventies big infrastructure projects were funded by public sources, (state budget or multilateral institutions, like as World Bank), and from loans and credits collaterized by governmental or bank guaranties. In recent years public sources have been shrinked, and private sector engagement has increased. Besides, in majority of countries attitude of governments is going into market mechanism implementation, an increase of work output and increase of infrastructure services accessibility. Generally competition improves supply and quality of infrastructure services, holding up life standards of local community. Simultaneously private sector participation let governments to provide bigger amounts to solution of social problems, or to funding projects unattractive to private sector.

During the last twenty years, from staring private sector engagement infrastructure funding and maintenance, in funding big projects, like as motorways, tunnels, gas pipes, the technique of *project finance* is used. *Project finance* imports additional distinguish feature to infrastructure projects.

Project finance is not clearly defined. In its essence, as a funding instrument, is not different from commercial loan. The basic difference, letting to its separating as a single category, is an approach to investment risks and to possibility of return the engaged money.

Encyclopaedic definition determines project finance as a collection of funds necessary to finance big construction and engineering projects, comprised mainly from loans, capital allotment outstanding till at least construction period, and from subsidies and governmental credits supported (especially in case of foreign funds) by guarantees and political risks insurance. Syndicates of banks, constructors and investors commonly provide project finance[13].

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[12] As Dailami and Leipziger argued potential investors are not interested in those projects without suitable agreed indemnities raising investment costs, often significantly considerably (Dailami M., Leipziger D., Infrastructure Project Finance and Capital Flows: A New Perspective, World Development 1998, Vol. 26, Issue 7, s. 1285)

[13] The Penguin International Dictionary of Finance, Graham Bannock and William Manser 1999

P. K. Nevitt in its book, called burden by P. Benoit[14], „Project Financing", cited by almost all authors dealing with these problems, described project finance as *„a financing of a particular economic unit in which a lender is satisfied to the cash flows and earnings of that economic unit as a source of funds from which a loan will be repaid and to the assets of the economic unit as collateral for the loan" and further „the key to a successful project financing is structuring the financing of a project with a little recourse as possible to the sponsor while at the same time providing sufficient credit support trough guarantees or undertakings of a sponsor or third party, so that lenders will be satisfied with the credit risk"*[15].

Project finance attributes to *„financing single project from the beginning in which lenders are interested by all means in cash flows generated by a project as a repayment of debts after implementing project into life, and project assets are treated as collateral of loans"*[16].

Presented definitions, despite of their differences in consent and details, underline three main features of project finance, so that (1) project financing from debts funds with limited recourse to project sponsors, (2) repayment of debts from earnings generated from project operation, and (3) covering debts funds by assets and rights to the project.

6. Controlling in infrastructure projects

Organisation of project financed and managed according to project finance rules is complicated and needs very precise procedures and co-ordination of material and financial tasks falling upon project parties, and risk allocation in way accepted by all parties. Such condition is fulfilled mostly through new entity, called Project Company. The aim of Project Company is to organise and promote the project, and to negotiate contracts necessary to performing and financing the whole project. Sponsors of projects are usually the shareholders of Project Company. Project Company has a little capital according to projected investment costs, and a rule is to support it by alien funds. The main condition in project financing is to separate project from Mother Company. Financing needs a design of all the financial structure with taking into account an access to funds. Investors are interested mainly in future profits and cash flows assessed upon feasibility study.

Project realised through project finance technique is one of the most risky and formally complicated. The necessity to achieve various permissions and to sign a lot of contracts with participants gives infrastructure project the next specific feature.

Project finance transactions needs a long preliminary period. Often a necessity of getting permissions, gathering necessary funds to commence and continue investment works, and to achieve a final acceptance from decision bodies (state government, local governments, equity investors, lenders) can last several years. *Project finance* investment needs a multidiscipline approach, knowledge and experience in technical

[14] Benoit Ph., *Project finance* at the World Bank, World Bank Technical Paper No. 312, Washington D.C. 1996, s. 7

[15] Nevitt P. K., Project Financing, 6th Edition, Euromoney Publications PLC, London 1995, s. 3

[16] Stein S.W., Miedzianogora Y., International *Project finance* – Private Infrastructure Projects in Emerging Countries, http:// www. kelleydrye. com/febr.94.htm.

matters, legal system and regulation provisions of certain country, macroeconomic knowledge and financial analysis skills[17].

Project should be carefully planned and organised in such manner that rights and duties of all parties involved into it are binding to others. Technical, financial and legal advisors should put a lot of efforts into preparing and detailed assessment of documentation set. Such work causes very often considerable expenses in total costs (so called transaction costs), and any slow of advisors work can lead to delay of project implementation. As project is bigger and risks are higher, and project structure more complicated, the more significant is a use of human resources and delay of period from project idea to finish it.

Additional research and legal action costs cause that project finance transactions are effective in big amount engagement. Lenders and investors have limited recourse to project sponsors. To sponsors technique of *project finance* is useful. This way they can omit the debts in their balance sheets, and avoid restrictions and limitations effected from signed loan agreements. Sponsors individually will not be able to have sufficient credit worthiness on level satisfactory to get a positive opinion of banks. To get funds in amounts enough to cover investment costs sponsors have to make suitable collateral packet in following phases of project, attractive and accepted both by investors and lenders.

Despite undoubted advantages, in which there is a possibility of running capital and time absorbing infrastructure projects financed mainly by debts with limited recourse to equity investors, and allocation of risks to all parties, *project finance* has got some disadvantages making more difficult project realisation. First of all because of its complexity such transactions absorb huge costs for their arranging and indirect financial support (various types of guarantees) and involve proportionally high transaction costs.

7. Conclusions

Complicated nature of infrastructure projects and compound process of realisation and financing cause increased incomparably to another investment risks and uncertainty. Efficient management of complex project needs a current monitoring of processes in each phase, identification of all dangers, their elimination, plan corrections with use of management tools and methods called as controlling.

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Summary
Project finance technique has been implemented quite often in infrastructure projects, especially with private sector involvement. Peculiar features of infrastructure projects with correlation to high level of risks in project finance method insist on necessity to monitor and control all the steps and procedures from commencing to closing-up the whole project. Controlling in infrastructure projects requires a deep knowledge and experience of all parties involved into it.

ACTIVITY-BASED COSTING FOR MANAGENT DECISIONS MAKING

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Introduction

The allocation of costs to products and other cost objects has occupied the minds of managers and accountants for more than a century. Whether it be to price stock, and hence to measure profit, to support pricing decisions or to provide factual underpinning for product/market decision, the identification of product costs is a vital component in the process of management.

"Cost" is a word used in many different ways in management and management decision-making. Cost is measure of something that has been given up (or will be given up) in the process of doing things. The utility and versatility of the concepts of cost are what make the collection, analysis, and presentation of cost information so useful in solving management problems.

Many problems can be "solved" by first measuring and using "cost" as a central part of the overall criteria or analysis. Sometimes managers want to predict or accomplish an objective in the least expensive manner. At other times they may want to compare cost to revenue to predict or achieve the highest profit or smallest loss. The least costly decision may not be the one ultimately selected because added benefits that can be gained by incurring greater costs may outweigh the greater cost itself.

The purpose of cost management system of company is to help maximise its profits – now and in the future. To achieve this goal, the company has to meet or beat the competition not only today, but also to continuously improves itself in future. Therefore, it should devise a cost management system that would lead to the achievement of two major objectives: global competition and continuous improvement. A cost management system requires a commitment from the top management of the company, involvement of its workers at all levels, and the establishments of a self-perpetuating system of improvement that will help improve value-added activities and decrease non-value added activities. It may begin with activity based costing (ABC), but a comprehensive system will also include activity-based management (ABM).

An aim of this work is to outline that term activity-based management has emerged to describe any application of ABC data to management decision.

Different Systems, Different Costs

Total manufacturing costs can be classified in several way (Ostwald, 1992). For example, they may be divided into material and production costs. They may also be categorized as direct costs and overhead costs. Further, the costs may be divided into variable costs that consist of direct costs and variable overhead costs, and fixed costs that remain constant over a period of time. It is the variable costs that can be influenced most at the design stage (Hundal, 1993). The predominant approach conventionally employed in cost estimation is what is termed the "burdened" (Fritz and Kimbler, 1996) or "volume-based" (Fendrock, 1992) costing approach. It uses an

allocation base such as direct labor dollars, machine house, or material dollars to assign indirect costs to products. The assumption is based on the unit-level characteristics of the products where the allocation base is directly proportional to product volume (the number of product units) and recourses are consumed in proportion to product volume. In many cases, however, high-volume products are over-costed while low-volume products are under-costed. As argued by Fritz and Kimbler (1996), this method can significantly distort product pricing in operations that encounter fluctuations in production, volume, complexity, size, materials, and setup, where volume-based allocations are not directly proportional to production volume.

Standard costing system have been criticised for many years, and not without good cause, for they fail to give true relevance to many cost drivers (Barker, 1995). Also, traditional costing, mainly using direct labor to allocate the indirect (overhead) costs to products, will distort product costing. Some of these weaknesses have been eliminated by adopting activity based costing, but this is only seen as a partial solution, attacking one part of the problem.

Activity based costing developed to provide more-accurate way of assigning the costs of indirect and support resources to activities, business processes, products, services and customers. ABC systems recognize that many organizational resources are required not for physical production of units of product but to provide a broad array of support activities that enable a variety of products and services to be produced for a diverse group of customers. The goal of ABC is not to allocate common costs to products. The goal is to measure and then price out all the resources used for activities that support the production and delivery of products and services to customers.

ABC attempts to first identify the activities being performed by the organization's support resources. Then it traces the resource expenses of the support resources to the activities, ending up with the total cost of performing each of the organization's support activities. In the next stage, ABC systems trace activity costs to products by identifying a cost drivers for each activity (called an activity cost driver), calculating an activity cost driver rate, and using this rate to drive activity costs to products. For each product (or service or customer) the quantity of each cost driver it used during a period is multiplied by the standard cost driver rate. The procedure may sound complicated, but actually it is quite simple to illustrate and even to implement in practice.

Activity based cost systems expand the type of "production cost centers" used to accumulate costs. Rather than focus only on the location or organization of responsibility centers, ABC systems focus on the actual activities performed by organizational resources. ABC systems retain, as traditional systems, activities that convert materials into finished products such a machining products and assembling products within production cost centers. But, in addition, ABC systems recognize that some resources perform work such as setting up machines, scheduling production orders, inspecting products, improving products, and moving materials. These are support activities; they are not directly involved in the physical process of converting raw materials to intermediate and finished products. For service organizations, lacking direct materials and easily traceable direct labor, almost all activities can be considered support: handing customer relationship and enhancing existing services, as

well as actually delivering the primary service (a checking account transaction, a phone call, a medical procedure, an airline flight) to the customer.

The key stages of ABC are shown as the shaded sections of integrated framework – the vertical logic of the ABC system (see Figure 1):

1. The division of the firm into activities (position 1).
2. The allocation of overhead resource (position 2) to activities excluding those indirect facility sustaining costs which are independent of activity levels.
3. The identification and quantification of activity drivers (position 3), which measure the use of an activity by cost objects (position 4).
4. The calculation of an activity driver rate for each activity.
5. The charging of an appropriate amount of each activity to each cost object (position 4).

The horizontal axis of the model: from the left, cost drivers (position 5) are those factors such as economies of scale and use of technology which affect the cost efficiency with activities can be performed; on the right, performance measurement (position 6) can be reflected by activity driver volumes and rates (see Figure 1).

So the basic ABC model offers a new approach to product cost measurement, one which generates information that is credible, because its derivation is logical and visible, to both financial and non-financial managers, and which also offers a new visibility to resource management.

An integrated framework for ABC

Raffish and Turney (1991) presented diagram, which integrates ABC information with its possible, applications (see Figure 1). This provides a coherent agenda for general managers who may wish to apply ABC derived information to a variety of decision-making situations.

This ABC system generates decision relevant information, which may be used in three ways:

1. to stimulate resource allocation decisions (position 1), i.e. changing the balance of resources allocated to activities in response to changing activity demand patterns and changing activity efficiencies;
2. to provide cost object (position 4) information on which to base market interface decisions;
3. to generate performance measurement (position 6) with which to monitor activity consumption and efficiency.

Early adopters of ABC saw its cost management role as the most valuable outcome of its implementation and the term activity-based cost management (ABCM) creeps into the literature from quite an early date. ABCM offers a new visibility to an area of hitherto near total mystery. For the first time, managers have logical, quantified input: output model of overhead consumption in which actions to alter demand efficiencies or waste can have a measurable effect on levels of resourcing.

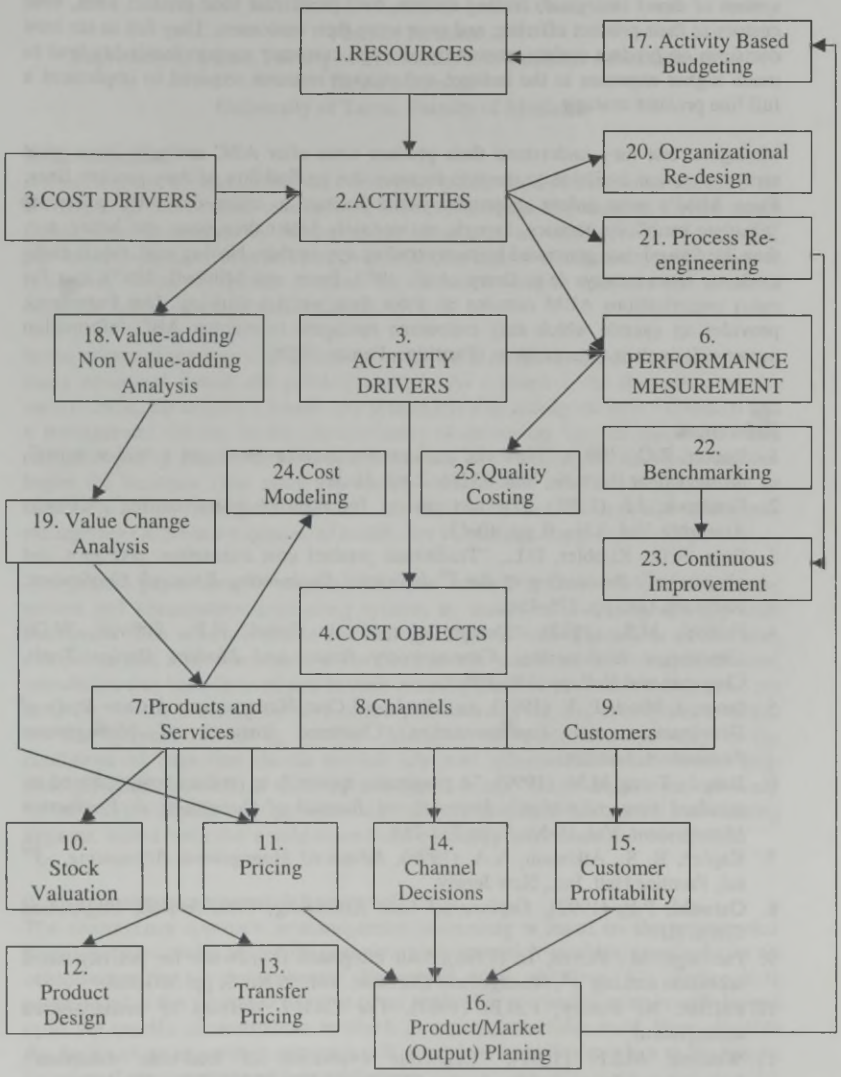

Figure 1. An integrated framework for activity-based management (Raffish and Turney, 1991).

Conclusion

Many companies, operating with signal from either their traditional standard cost system or direct (marginal) costing system, over proliferate their product lines, over customize their product offering, and over serve their customers. They fail to see how decisions on product variety, customization, and customer support inevitably lead to much higher expenses in the indirect and support resource required to implement a full-line product strategy.

Managers, one they understand their product costs after ABC analysis, have great arrays of action available to them to increase the profitability of they product lines. Even ABM's most ardent supporters would hesitate to claim that ABC generates "absolute truth". Its metrics, though, are certainly better than none and better, too, than the flawed data generated by many trading approaches. Having said, that is sadly evidence from surveys (e.g. Drury et al., 1993, Innes and Mitchell, 1995), that for many organizations ABM remains no more than wishful thinking. Our framework provides an agenda which may encourage managers to employ ABC information proactively in their organizations (Partridge, Perren, 1998).

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INTERNAL CONTINGENCIES OF MANAGEMENT ACCOUNTING IN ESTONIAN HOSPITALS

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1. Introduction

During the last decade an almost world-wide public sector reform was started. The framework of New Public Management (NPM) encourage adaptation of private sector management techniques by the public sector, as well as development of assessing performance measurement in order to monitor the degree of efficiency and effectiveness with which the public services are delivered, and to evaluate the financial consequences of management decisions.

In the course of the recent transition process, Estonia has simultaneously experienced many economic, social and political changes. As a result of the dramatic environmental shifts, the country's health care system has also undergone both a financial and a management reform. In the circumstances of increasing lack of resources, more stringent quality requirements in health services and the progress in health technologies the hospitals need more appropriate management information. Therefore, to contribute to the management reform, the need to further the cost accounting and management accounting systems of health care institutions has grown rapidly.

The present paper aims to examine the main internal impacts on the management reform and management accounting systems by means of a contingency approach framework. The established cost and management accounting practices of Estonian companies and institutions can be described, on the one hand, by the traditions and knowledge that have their origins in their centrally planned economic background, on the other, by the necessity to solve urgent problems of everyday management. Hence the management accounting systems (MAS) of the companies operating in the conditions of transition should provide adequate information, which would help managers take decisions at different managerial levels. Therefore, the present study focuses on the internal contingencies that influence hospitals' management accounting systems, with a particular emphasis on those operating in the transition economies.

2. The contingency approach framework

The contingency approach to management accounting is based on the premise that there is no universally acceptable accounting system which would be equally fit for all organisations in all circumstances (Emmanuel *et al.*, 1990, p. 57). Rather it is suggested that the particular features of an applicable accounting system will depend upon the specific circumstances in which an organisation finds itself. How effective the design of an accounting system is will depend on its ability to adapt to changes in its external environment and internal factors.

The major external factors that have been examined at company level in management accounting and control (including cost accounting) research are the external environment (Khandwalla, 1977; Merchant, 1990; Chapmann, 1997, Hartmann, 2000), and

national culture (Hofstede, 1984; Harrison, 1992; O'Connor 1995). The most widely emphasised research aspects are environmental uncertainty and hostility. External factors indicate the features of an external environment at the level of business and accounting. Environmental factors affect both the internal characteristics of an organisation and its management accounting practice. The hardly predictable environmental elements have their own impact on organisational structure, performance evaluation, budgeting and budgetary control, and are associated with more open and externally focused financial accounting systems.

The most common internal factors that have been examined in relation to management accounting are organisation's size (Bruns and Waterhouse, 1975; Merchant 1981), technology (Khandwalla, 1977; Merchant, 1984; Dunk, 1992), companies' strategies (Gupta and Govindarajan, 1984; Simons, 1987; Chenhall and Morris, 1995) and organisational culture (Flamholz, 1983).

As organisations become larger, the need for managers to handle greater quantities of information increases to a point when they have to institute controls, such as rules, documentation, specialisation of roles and functions, extended hierarchies and greater decentralisation down to hierarchical structures (Child and Mansfield, 1972).

Technological contingency factors include the nature of the production process, its degree of routine, how well means-end relationships are understood, and the amount of task variety (Emmanuel, *et al.*, 1990).

The list of contingencies and relations in our theoretical framework, however, cannot be considered exhaustive, since we were unable to identify and include all the factors and impacts. Contingency-based studies assume an existing link between nature, the use of the MAS and subsequently enhanced performance.

3. Research method

Current research builds on contingency theory and exploratory analysis of the internal factors influencing management accounting in Estonian hospitals. The empirical results are based on a case study, which was conducted at Tartu University hospital in Estonia between 2001 and 2002 to describe the factors influencing the utilisation of accounting information and management accounting practice. The present study was performed and analysed at both hospital and clinic level. Also departments as subordinate units of the clinics were considered. In 1999 the university hospital started to operate as a university clinics foundation. Earlier on it had operated as a state-financed institution. The university hospital incorporates 17 clinics. The medical treatment activities are co-ordinated at two divisional levels – those of the surgical division and of the internal medicine division. Over the last five years, the number of hospital beds has dropped from 2500 to 960 (in 2001). The hospital treats about 42,000 in-patients annually, the average length of hospitalisation being 7.3 days.

The research method comprised several interviews with key informants based on a unified questionnaire, observations of administrative meetings and document studies both at the level of clinics and at the general hospital level. The key informants interviewed were drawn from four different managerial levels – member of the board, chief division manager, director of a clinic, head of department. At the level of a

clinic, the managerial responsibilities are shared between the director, whose primary responsibility is related to the economic aspects of operation, and the head doctor, who is primarily responsible for the medical aspects.

4. Management accounting framework in hospital

Hospital performance measurement and evaluation is based on objective hospital outputs. One hospital output classification that has been gaining in the European Union and all over the world is Diagnosis-Related-Groups (DRG). This system, which originated in the U.S., has been introduced in the UK (HRG-system), France (GHM-system), the Netherlands (DBC-system), the Nordic countries (NordDRG), etc. (see Bellingen, 2001). The aim of the DRG-systems is to create a well functioning quasi-market of relatively comparable health care products. The number of DRGs varies in different countries. For example, there are 467 DRGs in the U.S.A. (Eichorn P., 1993, S. 119), 495 DRGs in Norway (Pettersen, 2001, p. 568), and 661 AR-DRGs in Australia (Bellingen, 2001, p.555).

As of 2003, the Estonian Health Insurance Fund is planning implementation of a DRG system in the financing of acute care in hospitals on the example of the NordDRG-system used in the Nordic countries. The plan of implementation involves consultations between actors, pricing, simulation, education, preparedness of information technology and test projects (Habicht T, Palu T., 2001, p.10). The DRGs are based on the premise that patients with similar diagnoses induce identical costs during medical treatment. Therefore, from costing aspects, a DRG can be handled as a cost homogeneous diagnosis group (Bellingen, 2001, p.552). This reform initiative referred to above is in line with the international trend to introduce more managerialism and market orientation into public sector governance, which is partial goal of the NPM reform.

In 1999 the university hospital was converted into the university clinics foundation. This environmental and organisational change served as an initiative for the following accounting improvements:

- consistent implementation of accrual-based accounting principles (which were introduced in the hospital in 1998);
- introduction of depreciation accounting;
- formation of strategic business units (clinics);
- introduction of service (medical treatment) costing based on full-costing principles.

In the course of the management reform in the health care system the focus of management accounting has shifted from resource allocation to resource consumption (Aidemark, 2001, p. 549). A comprehensive cost accounting system can serve as a basis for understanding the process of cost formation in the health care institutions' value chain, in order to analyse and manage cost behavior and compile appropriate budgets. Consequently, it has to deliver appropriate cost information to introduce the DRG-system. Cost accounting generally includes four broad areas: cost elements (types) accounting; cost center accounting; cost objects (cost units) accounting, and operative performance measurement (Mayer, *et al.*, 1994). Although there has been a big change in perceiving the role and relevance of cost and management accounting both in the business sector and the public sector, the managers of Estonian companies

and organisations still interpret their objectives, methods and influence on management decisions in differing ways. The importance of designing an appropriate cost accounting system is growing in the light of the fact that the dominating pool of fixed costs characteristic of medical services causes several problems for well-grounded cost allocation to single output measures (cost objects).

Proceeding from the above statements, we argue that the conceptual changes in financial accounting characteristic of the Estonian public sector served as a precondition for the design, introduction and improvement of cost accounting and management accounting, and the development of institutions' management accounting systems. We support Virtanen et al. (1996) and Scherrer (1996) who say that the evolution of financial accounting has influenced the development of cost accounting and management accounting.

5. Impact of technological aspects

It is argued that the production process will affect the selection of the type of costing system. A production facility that produces individual products to specific criteria will require a very different costing mechanism to the one that is geared up to mass production with high joint fixed costs. Due to product inter-dependence, there is a technological constraint on the design of an accounting system. New technology will evidently lead to a change in cost structures. Therefore, while the technological progress continues, the accounting system may probably become more complex and sophisticated, and capable of following cost appearance in the manufacturing process more precisely.

Modern hospitals can be characterised as large and very complicated business-like production organisations (Pettersen, 2001, p. 562). But unlike the typical tangible product where production and consumption are sharply separated, delivery of health services requires these activities to occur simultaneously (Pettersen, 1995, p. 209). Health care services can neither be inventoried nor transported. These factors reduce hospitals' flexibility and raise uncertainties for health care institutions, while the majority of patients have to be treated adequately whenever they arrive at hospital.

During the interviews we investigated the following technological aspects that influence the management accounting systems:

- introduction of new medical technologies;
- application of equipment investment appraisal methods.

In the survey we requested the respondents to assess on a five-point scale the degree to which the introduction of new medical technologies (medicines, procedures, medical treatments, etc.) influences the improvement of the hospital's cost accounting system. The chief division manager and the head of department estimated the corresponding influence with the highest grade (5), the director of a clinic with "4" and the member of the board only with "2". As the professional and economic responsibility for utilising new technology is mainly the domain of clinics and departments, the low interest in this issue at board level is understandable. On the other hand, these technologies continuously impact on operating costs, in particular on fixed costs, and consequently on the hospital's financial performance. We also investigated the role of equipment investment appraisal methods in the strategic decision-making process. The representatives of all managerial levels estimated

equipment investment accounting and analysis with the highest grade. Our analysis revealed that this issue essentially depends on communication between the clinic and department levels. The main way to understand the process how clinics and departments operate and how different costs are formed (also in the process of equipment utilisation) is via process mapping. But the lack of a common language between the economic and medical aspects of treatment processes contributes to the inability to grasp how performance indicators are shaped. As it was pointed out by the head of department: "The information required by the top managerial level about the utilisation of medical technologies is too primitive and inadequate".

Detailed cost centres accounting helps us to understand where costs appear and accordingly clarify the connections between costs and cost objects. Analysis of the current cost centre accounting revealed that in practice the cost centres are typically too broadly defined, mainly at the clinic and department levels. Therefore, broadly defined cost centres may raise potential difficulties in associating different cost elements with cost objects (products – DRG-groups), hence problems will occur in the whole product costing area.

6. Impact of organisational aspects

The quality of health care is a matter of professional judgement and there are no definitive measures to integrate the input-output aspects with quality aspects of health services. Consequently, the professional monopoly of both production and evaluation makes it difficult for managers to exercise behavioural control and output control (Pettersen, 1995, p. 209) Therefore, the managerial reforms in the hospital sector are heavily built on the adaptation of management accounting techniques and practices (Pettersen, 2001, p. 563), which have to rely on information beyond input-output measures.

During the interviews we investigated the following organisational aspects that influence management accounting systems:

- Need for more detailed divisional (segmental) performance information;
- Availability/non-availability of competent financial staff;
- Changes in the managerial practice;
- Dissatisfaction with the performance measurement system;
- Internal communication between the managerial levels of the hospital;
- Organisational culture.

These have been the most crucial drivers speeding up the changes in the management accounting practices of Estonian manufacturing companies. Among these the need for more detailed divisional (segmental) performance information had the strongest influence on the changes in the MAS. As mentioned above, the need for more detailed divisional (segmental) performance information reflects both environmental and organisational aspects of impacts on management accounting, depending on the performance unit involved. Such performance units as product groups, client groups, sales regions, etc. indicate the environmental aspects in our conception. Organisational units as performance units reflect the organisational aspects.

The main part of the hospital, clinic and department level performance measurement information was delivered by the central accounting department on a monthly basis,

only the director of a clinic compiled additional analytical information. Concerning the current cost and performance measurement system, the hospital level (a member of the board) stated that they were satisfied, the director of a clinic and the head of department were partly satisfied and the chief division manager was dissatisfied. The main limitation was inadequately detailed cost information. The respondents were interested in being provided more comprehensive cost budgets and reports.

The design and improvement of budgeting and reporting were mainly considered to be issues that should be more the responsibility of the economic staff than the medical one. Medical professionals at the level of clinic were neither in agreement about the role of the budget, nor had the accounting control system that would allow assuming financial responsibility. Our analysis concerned the implementation of accounting methods at different managerial levels within the hospital. The results revealed that no management accounting system had been devised for lower levels, whereas the financial accounting system functioned only at the central level. Economy was the concern of accountants and health care services were the concern of medical professionals. Neither budgeting nor budget outcomes were part of their daily activities. Our findings in the above-mentioned aspects are very similar to those described about hospitals in Sweden (see Aidemark, 2001) and in the UK (see Lapsley, 2001). The idea about accountable management would be seen as the means by which public sector management could be reformed (Pettersen, 2001, p. 563). The delegation of responsibility for costs through the idea of delegated internal budgets to hospital clinics is part of these reforms (Perrin, 1988). The operation of a hospital needs a balance between the medical efficiency and effectiveness issues, and economic efficiency and effectiveness. This approach presumes internal information communication between the management levels of the hospital and discussions about the cause-effect relationship of performance indicators. Such communication and teamwork can be considered an aspect of organisational culture.

7. Need for further improvements

As mentioned above, dissatisfaction with the performance measurement system which was unable to provide appropriate input for informing decision-making, served as a significant catalyst in improving the cost accounting and management accounting systems.

Analysis of the areas of the cost accounting system used by the hospital involved resulted in the following improvements, which will contribute towards introducing the DRG-System. Analysis of the chart of accounts, behavioural patterns of different costs and the performance measurement system used by the hospital gave us an idea to distinguish between the following cost elements (types) groups at the levels of clinic and department:

- variable costs of the medical treatment provided (including diagnosis-related costs, hotel costs etc.);
- fixed costs of the medical treatment (including the main part of labour costs, medical costs etc.);
- department operating costs;
- department space costs;
- general overhead costs of the clinic.

Such a comprehensive costs classification enables us to receive a more objective picture about the formation of performance costs in clinics and departments and will consequently serve as input informing the introduction of the DRG-System at the central hospital level, helping to improve the pricing process of the Estonian Health Insurance Fund.

Analysis of the current cost centre accounting revealed that in practice the cost centres are typically too broadly defined, mainly at the level of clinics. Therefore, broadly defined cost centres may raise potential difficulties in associating different cost elements with cost objects (products – DRG- groups), and hence problems will occur in the whole product costing area. We suggest that the main direction of improvement in this area would include separation of cost centres at the departmental, medical treatment (process) and even particular medical equipment levels.

Our analysis of the remaining areas of cost accounting in the hospital under discussion revealed that the main measures for improving cost objects (cost units) accounting should include introduction of activity-based costing to ensure objective cost allocation between different DRGs. As the main direction to improve operative performance measurement we suggest implementation of the contribution margin approach, which enables one to measure performance at different managerial levels – those of medical treatment (process), departments and clinics. These improvements in different areas of cost accounting will undoubtedly contribute towards more objective management decisions at all levels of hospital management.

The analysis revealed that in the transformation process of health care institutions, the shaping of cost accounting and management accounting is strongly influenced by the need for a more detailed divisional and segmental performance information at the levels of both separate clinics and the hospital as a whole, and by the evolution of financial accounting.

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CAPITAL BUDGETING: THEORY AND PRACTICE IN ESTONIA

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Abstract

The existence of a gap between corporate finance theory and practice has for decades been a subject of research. One of the most important areas of decision-making is the long-term investment evaluation and planning. In an increasingly competitive environment, the capital budgeting decisions made by a company are critical to its long-term survival. Choosing the appropriate methods for making capital investment decisions is thus of great significance. Do Estonian firms use theoretically sound capital budgeting techniques for decision-making purposes? In the summer of 2002, the doctoral students of Tallinn Technical University carried out a survey of capital budgeting practices of 40 Estonian companies. Two areas were surveyed: (1) capital budgeting, and (2) performance measurement. The results of the survey were compared with the results of similar surveys in other countries. The use of sophisticated capital budgeting techniques was found to be comparable to that of other countries, which was a somewhat better result than expected. It must be noted that the sample was biased towards larger companies and higher-educated managers. The usage of internal rate of return (IRR) and net present value (NPV) was lower and the usage of accounting rate of return and payback was higher in Estonia than in the western countries. This could be attributed to the short history of Estonian free market economy and the lack of appropriate education, as well as to the small size of the Estonian economy and companies.

Introduction

The existence of a gap between corporate finance theory and practice has for decades been a subject of research. One of the most important areas of decision-making is the long-term investment evaluation and planning. In an increasingly competitive environment, the capital budgeting decisions made by a company are critical to its long-term survival. Choosing the appropriate methods for making capital investment decisions is thus of great significance.

In the summer of 2002, the doctoral students of Tallinn Technical University carried out a survey of capital budgeting practices of 40 Estonian companies. Two areas were surveyed: (1) capital budgeting, and (2) performance measurement. The aim of the survey was to find answers to the following questions:

1) What methods do Estonian companies use for capital budgeting and what criteria they use for performance measurement;
2) To what extent are different methods important in decision making;
3) What drives the use of different methods;
4) What is the level of sophistication in capital budgeting practices compared to companies in other countries?

Theoretical background and prior studies

Historically the first performance measures were various accounting rate of return (ARR) measures, i.e., return on equity (ROE), return on investment (ROI), and earnings per share (EPS). The main difference of the next generation models (net present value (NPV), internal rate of return, IRR) from earlier models was the inclusion of the cost of capital concept. Theoretical background for the "new" models was laid already in 1920s.

The economists have reasoned for centuries that for a firm to create value, its earnings must surpass its cost of capital (Hamilton (1777), Marshall (1890)). In the 20th century that idea has had different labels, from the residual income (RI) model to economic value added (EVA®) model. The residual income model was recommended by Solomons in the 1960s (Solomons (1965) for performance measurement of business units, and the concept was used by General Motors in the 1920s and the term 'residual income' was coined by General Electric in the 1950s.

The practice of capital budgeting has been quite thoroughly researched during the last 40 years. Most surveys look at the practices of large companies and there a clear trend towards increased use of sophisticated capital budgeting practices can be seen. Pike (1996) reports in his longitudinal study of UK companies that while in 1975 32% of companies used NPV and 44% IRR models, in 1992, the respective numbers were 74% and 81%. Pike also reported that while in 1975 many companies used only one or two methods to evaluate investments, in 1992 the most common was a combination of four methods (NPV, IRR, payback and ARR). These changes are probably based on more widespread use of computing power and the need to examine the investments from various viewpoints.

In America, the trend is similar (Table 1). Klammer (1972) shows that discounted cash flow (DCF) usage grew from 16.7% in 1959 to 33.7% in 1964 to 43% in 1970. Research in the 1970s and the 1980s showed that DCF usage had grown to 60% and 80% levels (e.g., Canada and Miller (1984), Gitman and Forrester (1977), Schall, Sundem, and Geijsbeek (1978) and Stanley and Block (1984)). In the 1990s, DCF usage in large enterprises was a rule rather than an exception (Trahan and Gitman (1995), Graham and Campbell (2001), Ryan (2002)).

Table 1. Prior capital budgeting studies carried through in Unites States

Year of research	Year of public.	Author(s)	Sample size	Res-ponse rate	Sample	DCF usage (%)
1976	1977	Gitman, LJ; Forrester, JR	268	38	Large firms	63
1977	1978	Schall, LD; Sundem, GL; Geijsbeek, WR	424	46	Large firms	86
1980-81	1983	Moore and Reichert	500	60	Fortune 500	86
1984	1985	Baker et al	100	74	Fortune 100	98
1991	1995	Poterba and Summers	1000	23	Fortune 1000	92

	1995	Trahan & Gitman	700	12	Fortune 500/Forbes best 200 small comp	
1997	1998	Bruner et al	32	84	50 Best Practice in Finance	96
1999-2000	2001	Graham and Campbell	4440	9	Fortune 500, FEI 4400 members	75
2001	2002	Ryan	1000	20,5	Fortune 1000	96

Source: Authors' compilation

During the last four decades, the less sophisticated methods like payback and accounting rate of return have practically lost their role as a primary criterion in investment appraisal process. Larger enterprises use them either as secondary criteria or have ceased to use them completely.

However, it is interesting to look at the surveys of American small enterprises (defined as firms with an annual turnover less than five million dollars and less than 1000 employees). Block's 1997 survey reports only 27.6% usage of DCF methods and 42.7% firms using payback as the primary method in capital budgeting (Block 1997).

When comparing the present survey to prior studies, the first difference is the size of enterprises surveyed, even if looking at the studies involving small- and medium size companies. The small size of Estonia limits the size of companies and the number of large companies. The second difference is that in the present survey, two distinct areas are concurrently under examination: capital budgeting and performance measurement (the results of the latter will not be discussed in this article). In other studies, often the questions concerning cost of capital calculations and capital structure questions were included, while in present study those were left out for various reasons: there is no efficient stock market in Estonia, the history of free market economy is not long enough, etc.

To the authors' knowledge, no academic surveys on this topic have been carried out in Estonia, except for Mikelsaar's bachelor thesis survey in 1998 and Bürkland's course work from 1999, analyzing the data of 24 and 52 enterprises, respectively (Mikelsaar 1998, Bürkland 1999).

Methodology

For the survey instrument, a questionnaire was used, like in most similar studies. Questions were mainly structured to provide a systematic overview of the subject. However, the respondents always had an opportunity to choose the answer "other" and comment on their responses.

The survey was carried through in first half of 2002 in two stages. First, the CEOs and CFOs of various companies taking part in EBS Executive Training Centre's development programs were surveyed. The questionnaire was handed out at the beginning of

the training days. The sample size was 55 managers, and 24 usable responses were received. In the second stage, 98 managers who have attended management conferences during last 4 years were surveyed. The questionnaire was emailed to personal e-mail addresses. 16 usable responses were received. In total, 40 responses were received.

Since the sample includes only managers taking interest in further education, there is a strong probability that the results are not representative of an average Estonian manager, but of one who is more educated and more active than average. When looking at the size of enterprises both in terms of turnover and the number of employees, the sample is somewhat biased towards bigger companies. In terms of companies' industry affiliation, the sample is quite representative, including firms from most industries (except for real estate). In absolute size, the sample is too small to bring out statistically significant relationships between variables. The size of the sample will limit both appropriate statistical methods as well as the reliability of results. Therefore the analysis has mostly focused on descriptive and comparative statistics.

In this article, the focus will be on answers to questions concerning the capital budgeting process. The first four questions related to various capital budgeting criteria: whether the manager was familiar with the concept, whether the criterion was used in evaluating large projects, whether the criterion was used in evaluating small projects (distinction to be made by respondents) and which criteria were considered important in decision making. The next four questions asked the respondent to name the method they use in evaluating projects the most, then list the advantages, disadvantages and main reasons for using that method.

Definitions of methods were given in the questionnaire's appendix. The capital budgeting methods that were under examination included:

1) Net present value (NPV)
2) Internal rate of return (IRR)
3) Payback period;
4) Accounting rate of return, i.e., ROI or ROE
5) Sensitivity analysis
6) Scenario analysis
7) Real option valuation (ROV)

Results and Discussion

An overview of familiarity and usage of various methods in evaluating small and large projects is given on Figure 1. The most familiar and most often used criterion was payback period, the second and third were accounting rate of return and net present value, however, the difference was not significant. The same order (payback, ARR, NPV) applied to all questions: familiarity, usage for large projects and for small projects, which is logical: in order to use a method, one must be familiar with it.

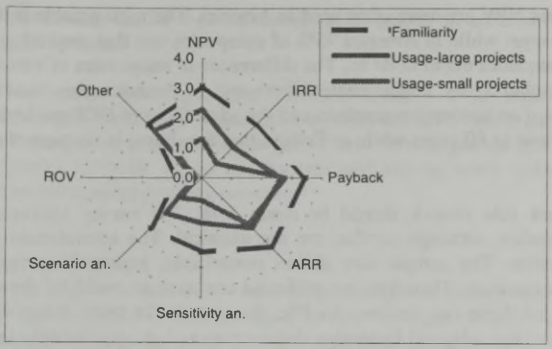

Figure 1. Familiarity and use of various capital budgeting methods
(Scale: 0-"never", 4-"always" or 0-"not at all", 4-"very well")

Based on Graham and Campbell 2001 survey, the results from Estonia were compared to those from America. The use of capital budgeting methods of managers, who "always" or "almost always" use a method, was compared (Figure 2). The results were in favor of America in terms of level of sophisticated capital budgeting methods use as was expected. However, the difference was not nearly as big as expected. Considering the size of enterprises, it was a positive surprise that more than half of respondents use DCF methods always or almost always. In addition, a quarter of respondents use supportive analysis methods of scenario and/or sensitivity analysis.

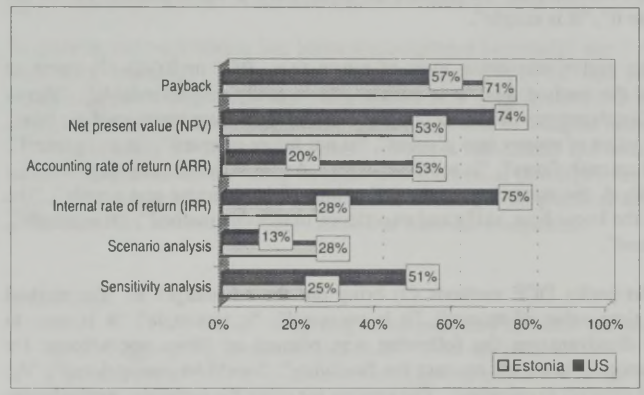

Figure 2. Comparison of capital budgeting methods use in US and Estonia.
Percentage of CFOs who use a method "always" or "almost always".
Source: Graham, J., Campbell, H. "The theory and practice of corporate finance: Evidence from the field," Journal of Financial Economics, 2001, and results from present survey

However, in general the Estonian managers prefer methods that are based on accounting numbers to DCF methods. While in Estonia payback and ARR are more often

used, IRR and NPV are more often used in America. The most notable is the difference in IRR usage: while in America 75% of companies use that method, only 28% of Estonian companies claim to do so. The differences in usage rates of various methods could be explained by educational differences: in America the disadvantages of methods based on accounting numbers and the advantages of DCF methods have been taught for close to 60 years while in Estonia that timeframe is no more than last 5-10 years.

An important side remark should be made here. The survey instruments of the compared studies, although similar, are not identical. The administration of survey was not similar. The sample size differs remarkable, mainly in terms of size of companies examined. Therefore, no profound conclusions could be drawn from the comparison of those two studies. As Pike has put it: "In truth, a history of capital budgeting surveys, plagued by design deficiencies and disappointingly low response rates, have all too often rendered generalisations, statistical inferenses and comparisons at best suspect, and at worst misleading" (Pike 1996).

Additional questions asked respondents to reason their choice of methods: what are the advantages and disadvantages of the most used method, and why do they use that model in particular.

Managers who prefer the payback criterion (10) bring out its advantages as "easy to explain to others", "easy to calculate", "quick and appropriate for decision-making", "simple and clear". As disadvantages the respondents acknowledged that the payback criterion "does not take the time value of money into account", "does not account for the cost of capital", and that it is "too simple". The reasons for using the payback method include notions that "all projects must pay back at some point", "the owner wants us to use it", "it is simple".

Managers who prefer accounting rates of return (e.g., ROI or ROE) (7) name as advantages of the method that "it is simple", "it is easily understandable", "shows efficiency". Disadvantages of the accounting rate of return were mentioned as: "does not take time value of money into account", "is not future-oriented", "is too general", "is not based on cash flows", "is too short-term". As for why the managers use this particular method, the reasons were the following: "it is objective and simple", "the company has the know-how, skills and experience to use that method", "it is simple", "it is easy to use".

Managers who prefer DCF methods (9) bring out the advantages as "the method accounts for time value of money", "it is universal", "it is simple" "it is easy to explain". As disadvantages the following was pointed at: "does not account for qualitative factors", "does not account for flexibility", "could be manipulated", "the cost of capital difficult to calculate". The reasons for using the particular method were as follows: "it is economically sound criterion", "simple", "accounts for risk".

It is interesting to note that the use of all methods was often justified on the basis of their simplicity. Also, it was positive that the users of less sophisticated methods were aware of the shortcomings of the methods (especially about payback period and ARR not accounting for time value of money). The DCF method users were even more

advanced, mentioning the NPV shortcomings as its ability to account for flexibility and managerial options.

Additional comments by respondents included remarks: "the capital budgeting process is often quite regulated by headquarters from abroad", "the implementation is often more important than the evaluation phase" and "it is important that the usage of capital budgeting methods would not became and end in itself, rather, it should support the business strategy of the company".

Conclusions

The aim of the study was to find out the current situation of capital budgeting theory and practice in Estonia. The results indicated there is a gap between what modern financial theory suggests and what financial managers do in Estonia. However, the gap was not as big as expected, considering the short history of free market economy and corresponding educational system. The good results could be attributed to the fact that the sample was somewhat biased towards larger companies and better-educated managers than average.

Main results of the study:

1) In Estonia, the use of sophisticated capital budgeting methods is lower than in US and UK;
2) More than half of respondents use sophisticated capital budgeting methods;
3) Managers use those methods that are familiar;
4) Methods become familiar through learning or through experience;
5) Through learning and experience the methods become simpler to use;
6) Simplicity is one of the main reasons for using a method.

In general, the respondents had better-than-expected knowledge about various capital budgeting methods. As long as managers are aware of the advantages and disadvantages of accounting based models and DCF models, there is nothing wrong in using the simpler models. Considering the average size of a capital investment project in Estonia, using the most sophisticated models is most likely not reasonable in case of all projects. However, being familiar with theoretical developments in the field of corporate finance and capital budgeting and learning from practical advancements in other countries will help in value creation of Estonian companies.

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THE EVOLVEMENT OF COST ACCOUNTING IN INDUSTRIAL UNITS: CASE FINLAND

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Abstract
During the 1990s, cost accounting revived as a prominent management accounting issue both at the levels of research and practice. One of the earliest and most popular research topics has been product costing in the manufacturing context. From the surveys based on cross-sectional data carried out during the first half of the decade, there has recently been a shift toward research settings which provide an opportunity for investigating the evolvement of cost accounting over time. The purpose of this paper is to provide a contribution to this discussion by (1) describing the current practice and developmental trends in cost accounting in Finnish manufacturing companies, and by (2) relating the observations of this study to the results obtained in previous studies conducted in other European countries. The research was carried out through a postal questionnaire mailed to 300 Finnish industrial units (response rate 34,1 per cent). The questionnaire addressed product costing principles and methods, and perceived problems in cost accounting. The results obtained show that the use of full cost approach in product costing has increased, and this seems to be related to the adoption of activity-based costing. In contrast, the basic problems of product costing seem to have remained the same among both ABC-adopters and non-adopters.

1. Introduction

The purpose of accounting is generally defined as providing information to assist the decision-making processes of internal (i.e. managers) and external users (e.g. investors, authorities). In accounting textbooks, a distinction between management and financial accounting is made on the basis of these two user groups. Management accounting helps managers attain the goals of an organisation by measuring and reporting financial and non-financial information, whereas financial accounting focuses on reporting to external parties. (e.g. Horngren *et al.* 2000: 2-3)

Cost accounting is related to both financial and management accounting. Cost information is collected and analysed for both internal and external purposes. According to the well-known book by Johnson and Kaplan (1987), this divide between internal and external purposes has been a crucial factor in the evolvement of cost accounting procedures. From an early emphasis on providing relevant cost information for management purposes, cost accounting systems have subsequently become subservient to the purposes of financial accounting, i.e. to the determination of the cost of goods sold and inventory values (Johnson and Kaplan, 1987: 13). Consequently, by failing to keep pace with modern production and process control technologies, information provided by cost accounting systems has gradually become more and more irrelevant in the form of distorted product costs, excessively aggregated process control figures and short-term performance measures.

The current business environment has been described as a third wave economy to distinguish it from agricultural (the first wave) and industrial economy (the second wave). The third wave has been named information economy underlining the rise of knowledge as a key economic resource (see Hope and Hope, 1997). Although this line of thinking tends to emphasize the role of service industries, the same kind of development can be distinguished in manufacturing organisations. This has become manifest in the use of modern production technologies (e.g. MRP, JIT, Mass Customisation, CIM) and process technologies (e.g. BPR, TQM, SCM, TBM, ABM). The functioning of multi-divisional and hierarchical organisational structures so widely adopted in industrial enterprises has now been called into question, and new organisational models based on process and network modes (e.g. lean, value chain, virtual organisations) have been proposed to facilitate cost-efficient operations in the modern business context.

In the realm of cost accounting, a similar questioning of traditional approaches has taken place in the light of the changing demands of the business environment. Not only have the traditional product costing methods (e.g. variable and full costing) been reconsidered to meet the challenge set forth by recent developments in production and process technologies, but also new cost accounting approaches have emerged to facilitate modern cost management. These approaches include, among others, the following technologies for cost accounting: target costing (e.g. Kato, 1993); kaizen costing (e.g. Imai, 1986); activity-based costing (e.g. Miller and Vollmann, 1985; Cooper and Kaplan, 1988); life cycle costing (e.g. Susman, 1989; Shields and Young, 1991); costs for quality (e.g. Horngren et al., 2000); backflush costing (e.g. Bromwich and Bhimani, 1994); and throughput accounting (e.g. Goldratt and Cox, 1984; Corbett, 1990).

At the level of research, the adoption rates of the proposed cost accounting methods and changes in cost management practices have become subjects of many empirical studies. Based mainly on data collected by surveys, these studies have tried to describe and analyse current practice and developmental trends in the realm of cost accounting. The research topics cover product costing in general (see Ask and Ax, 1992, 1997; Drury and Tayles, 1994; Lukka and Granlund, 1996) as well as the diffusion of a specific costing approach with potential innovative content (for example, activity-based costing (= ABC), see e.g. Innes and Mitchell, 1995; Malmi, 1996, 1999; Bjørnenak, 1997, Innes *et al.* 2000).

As the authors are most familiar with cost accounting practices of Finnish companies, Finland provides the national setting for the study. Although this may be regarded as a limitation in the light of the international perspective, the business context of Finnish companies does not considerably differ from that in other industrialised western countries (Malmi, 1999). **Thus, the objective of this paper is to describe the current practice and developmental trends in cost accounting in the units of Finnish manufacturing companies.**

Recently, several writers have emphasized the need to take into account both the factors within the companies (e.g. cost structure) and the wider external context (e.g. competitive and institutional environment) whilst tracing the evolvement of management control in general and cost accounting in particular (Virtanen *et al.* 1996, Ask *et al.* 1996, Bjørnenak, 1997). The authors acknowledge that both external and

internal factors are relevant in this regard, but due to the implementation of the empirical study only internal factors are included in the forthcoming analysis. This may be regarded as a further limitation, but the exclusion of external factors may be justified by their indirect role in the formation of cost accounting. Hence, the effects of the external context are reflected through the changes observable in the internal factors. This issue is complicated further by the methodological risk inherent in efforts to explain internal changes with external factors (Hartmann, 2000).

This paper is organised as follows. The next section depicts the empirical foundations of the previous studies and the phases of data collection and analysis carried out in this study. In the third section, the main empirical results are presented and analysed. Finally, the conclusions and key implications of the study are discussed.

2. Empirical Underpinnings of the Study

2.1 Previous Studies

Several surveys have focussed on the evolvement of management accounting practice due to the changes that have taken place in the manufacturing environment. However, apart from the study by Innes *et al.* (2000), the cross-sectional surveys provide little insight into how cost accounting and cost management practices changed during 1990s. This section describes a representative selection of surveys conducted in Nordic countries (i.e. Finland, Sweden, Norway) and in the UK.

The study by Lukka and Granlund (1996) was implemented through a postal questionnaire in 1992. According to the results, significant changes have emerged in several areas of the respondents' operating environment. The most significant effect was the decrease in the proportion of direct labour costs in the cost structures of the units. The most important problem areas of cost accounting concerned the allocation of various overhead costs to products. None of the respondents reported the adoption of new cost accounting techniques.

The articles by Laitinen (1995a, 1995b) were based on empirical data collected in 1993 in order to find an explanation for the changes in accounting practices that have been taking place in large and medium-sized Finnish companies. Three distinctive types of firms were identified: large industrial firms (no significant shortcomings in management accounting systems (= MAS)), middle-sized commercial firms (serious shortcomings in MAS), and middle-sized labour-intensive industrial firms (serious shortcomings in cost accounting).

The study by Malmi (1996) provides empirical evidence on ABC applications in large and medium-sized business units in the Finnish metal and engineering industries. The data for another study by Malmi (1999) come from a set of four surveys, from interviews with consultants, academics and software industry employees, and from archival sources. The study proposes that the driving force underlying the spread of management accounting innovations changes over the course of the diffusion process from efficient choice to the imitation of fashion-setting organisations. Later on, further diffusion is explained both by mimetic behaviour and efficient-choice.

In the study by Ask and Ax (1997) the focus was on product costing, both as portrayed in the literature, and in practice. The study was empirical and it was based on a questionnaire survey in the Swedish engineering industry in 1991. The findings from the descriptive study show that the message of the lost relevance of costing practices seems to be misdirected. The explanatory study lends support to the hypothesis that the design of cost accounting systems depends on contingency factors. Strongest support for the hypothesis was found between three factors (the type of production systems, the number of products manufactured, and company size) and different attributes of costing systems. Weaker support was found between three other factors (degree of automation, high- vs. low-tech companies, and degree of competition) and costing systems.

The paper by Dahlgren *et al.* (2001) reported on a survey conducted during 1999 with the aim to describe and explain the diffusion and adoption of ABC in Swedish manufacturing industry. The survey showed that 16 per cent of respondents have implemented and are currently using ABC, but 53 per cent of the firms have never even discussed adopting ABC. Three factors (size, strategic importance of costing, and budgetary control) were statistically significant and could explain the adoption and use of ABC in the sample of Swedish firms.

The article by Bjørnenak (1997) deals with the diffusion of ABC in Norway. The findings showed that a large number of companies have adopted ABC as an idea, i.e. they have implemented ABC, or plan to do so (40 per cent). Various internal and external variables were tested for their possible relationship with planned or actual ABC-adoption, but only cost structure was found to be statistically significant. Instead of company size, the degree of ABC knowledge was tested as a potential differentiating factor between ABC-adopters and non-adopters. Companies with knowledge of ABC were significantly larger than other respondents. However, size did not discriminate between adopters and non-adopters within the group with ABC knowledge.

The aims of the paper by Drury and Tayles (1994) were to provide evidence to ascertain the extent to which recent criticism of product costing can be judged and to compare and comment upon the theory and practice of product costing. The survey findings indicated that product costs computed to meet inventory valuation requirements were widely used for decision-making and internal profit measurement. The majority of firms, however, used both full costs and variable costs for decision-making and the findings suggest that product cost information is used in a more flexible manner than that depicted by previous studies.

The study by Innes *et al.* (2000) reviewed the results of two UK surveys of ABC in the UK's largest companies. The first study was conducted in 1994, and the second in 1999. The study assesses the changes that have occurred in the ABC adoption status of companies over a 5-year period. For the ABC-adopters, some comparative information is provided on the nature of the ABC systems in use, their designers, the uses to which they have been put and the levels of success and importance that participants attribute to them. For the non-adopters, the reasons for their lack of commitment to ABC were explored.

2.2. Data and Method of the Study

The empirical data were gathered through a postal questionnaire. It included questions concerning the cost structure, the manufacturing environment, size, and the financial performance of the units. The influence of these factors on product costing principles and methods, and on the perceived problems of product costing was analysed. All the firms were industrial units, and the firms in the survey were selected in controlled manner from the list of the 500 biggest companies in Finland so that all industries were covered. The present study focuses on large and medium-sized units with over 50 employees, because it can be assumed that systematic cost accounting is little used by smaller units. The sample size was 300 business units. These were selected as the target group of this study, since more than one cost accounting system may be in use in a large company. The questionnaire was addressed to the chief financial officer of the firm in autumn 1999. We received 99 usable responses by mid-January 2000, and the final response rate was 34,1 per cent, which may be considered satisfactory for a postal survey. Most of the respondents (79 per cent) were working in the accounting function. The head of the industrial unit responded in 11 per cent of the cases, and the remaining 10 per cent worked either in production, logistics or data management.

The division of sample units by industry is as follows: metal engineering (18 per cent of the units), electrical engineering (16 per cent), paper and pulp (14 per cent), basic metal and metal products (12 per cent), chemicals (11 per cent) and foodstuffs (8 per cent). The remaining part of the sample (19 per cent) consists of units operating in seven different industries. Overall, the data seem to offer a representative sample of Finnish manufacturing lines of business, and the set is very similar to that in the earlier study by Lukka and Granlund (1996).

3. Empirical Results

3.1. Changes in Cost Structure and Manufacturing Environment

One of the main arguments in the criticism of traditional cost accounting in the late 1980s was the changing cost structure of companies. According to the forecasts presented at that time, the proportion of direct labour cost was to decrease, and the proportion of overhead costs to increase (Morrow, 1992). Table 1 shows that at the end of the 1990s, material costs represented on average more than half (52.5 per cent) in the cost structure of companies, and the share of direct labour cost is less that one sixth of all costs. Comparing these observations with the results of the study by Lukka and Granlund (1996), some changes can be observed. In 1992, the mean of material cost was only 44,8 per cent - now 52.5 per cent, while direct labour costs were 19 per cent – now only 15 per cent. The proportion of other cost items remained at almost the same level from 1992 to 1999.

Secondly, changes in manufacturing environment were expected to create a challenge to cost accounting (e.g. Hope and Hope, 1997). The manufacturing environment was measured in this study by four variables. The variables under investigation were production type, degree of automation in the manufacturing process, number of products, and product type.

Table 1. The proportion of different cost items as a percentage of total cost (1992 and 1999)

Cost item	1992	Mean	SD	Range	1999	Mean	SD	Range
Material		44,8%	16,1%	5 – 85%		52,5%	19,0%	7–92%
Direct labour		19,0%	10,5%	0 – 60%		15,0%	10,3%	1–55%
Other variable manufacturing costs		7,4%	6,3%	0 – 38%		8,6%	8,1%	0–39%
Fixed manufacturing costs		9,7%	7,7%	0 – 40%		8,3%	6,2%	0–33%
Other fixed costs		19,1%	12,1%	0 – 60%		15,6%	13,2%	0–59%
	N = 117	100 %			N =93	100%		

The analysis of the *production types* shows that the role of batch production (55 per cent) has decreased and that of process production (41%) increased, in one way or other, during the 1990s in Finnish manufacturing units. In the study by Lukka and Granlund (1996), it was found that batch production (67 per cent) was dominant in 1992. The average *number of products*, calculated from unclassified data, was 987 (standard deviation 2028, range 3 - 12400 and median 200). The results indicate a slightly growing tendency in the number of products, compared to the average number of products in the study by Lukka and Granlund (1996). Regarding the development of *automation in the manufacturing process* of the units, it seems that the degree of automation has increased over the last few years. The measurement instrument was a five-item Likert scale (from 'very small' to 'very large'), and the mean value was 3.1. Finally, the analysis of *product types* shows that 43 per cent of the respondents were manufacturing mass-customised products, 25 per cent mainly tailored products, 19 per cent mainly standard products, 10 per cent tailored products only, and 3 per cent something else.

3.2. Developmental Trends in Cost Accounting

Traditional cost accounting literature often proposes that variable costing provides more useful information for decision-making. Relevant costs are required for a variety of short-term decisions, for example whether to make a component internally or to purchase externally (e.g. Drury 1992). On the other hand, the proponents of full costing argue that asset services represented by fixed manufacturing costs are just as much expended in the production of goods and services as are the services represented by variable costs. They argue that because all these assets are needed to produce finished products, all the related costs should be charged to the units produced (e.g. Drury 1992). Despite this, with the proportion of overhead costs increasing, several researchers have emphasized the importance of allocating all costs according to the cost hierarchy (e.g. Cooper and Kaplan, 1999).

In Finland, the 1940s was the golden age in the development of the full costing method. At the beginning of the 1950s the traditional full costing was complemented by the allegedly more dynamic contribution approach, or marginal costing (Näsi, 1994). Again, at the beginning of the 1990s, there began a discussion as to whether one should use variable or full costing. The figures presented in Table 2 indicate that actually the adoption of the full costing principle in Finland has increased from 31 per cent to 40 per cent, whereas the use of variable costing has decreased from 42 per cent

to 33 per cent[1]. In comparison with the results of Ask and Ax (1997), it can be found that during the 1990s the Finnish practice has been drawn closer to Sweden, where full costing has traditionally been the dominant product costing principle (60 per cent), and the findings in Ask *et al.* (1996) indicate that full costing is preferred by the majority of companies in all situations analysed. These results are interesting because in the USA the full costing (absorption costing) principle has traditionally been more widely used to calculate product costs, and the use of variable costing has become more frequent within the last few years. According to the textbook by Horngren *et al.* (1996), over half of the major firms in the United States use variable costing for some internal reporting, and nearly a quarter use it as the primary internal format. Furthermore, Drury and Tayles (1994) observed that most organisations in the UK use cost information in a flexible manner and that decisions are not based solely on full cost or variable cost information.

Table 2. Product costing principles (1992 and 1999)

Principle	1992	1999
Variable costing	42 %	32 %
Full costing	31 %	40 %
Variable and full costing	27 %	24 %
Other	1 %	4 %
Total	100 %	100 %
N	130	97

Table 3 shows that Finnish manufacturing units have adopted on average more than one product costing method. The most common method in the whole sample is job-order costing (50,0 per cent), but process costing (46,9 per cent) has been adopted almost as often as process costing. Of respondents 25,5 per cent were using ABC at least to some extent.

Table 3. Product costing techniques (1992 and 1999)

Product costing techniques	*1992*		*1999*		
	N		N	All	Proportion to 100%
Process costing	42	32,8 %	46	46,9 %	33,6 %
Job-order costing	38	29,7 %	49	50,0 %	35,8 %
Activity-based costing	0	0	25	25,5 %	18,2 %
Target costing	0	0	8	8,2 %	5,8 %
Life cycle costing	0	0	6	6,1 %	4,4 %
Other	48	37,5 %	3	3,1 %	2,2 %
All	128	100,0 %	137	139,8 %	100,0 %
N	128		98		

[1] Full costing has become more widely adopted in Finland for several probable reasons. One may be the partially reformed Accounting Act and Decree of 1992 (Virtanen *et al.* 1996). Another potential reason for the increased adoption of full costing is the diffusion of activity-based costing. Among ABC-adopters, 48 per cent are using full costing, and 11 per cent variable costing. Among non-adopters of ABC, 37 per cent are using full costing, and 40 per cent variable costing.

In the study by Lukka and Granlund (1996), 32,8 per cent of the respondents were using process-costing methods, and 29,7 per cent job-order costing. In this study the corresponding figures were 33,6 per cent and 35,8 percent, respectively. In 1992, the usage of modern cost accounting methods (ABC, target costing, life cycle costing) was 0 per cent, whilst 6 per cent were implementing ABC, and 24 per cent were considering it. However, the situation was changing very rapidly. According to Laitinen (1995a), the situation was already different in the spring 1993, because 11 per cent of the firms were already using ABC and 13 per cent were currently implementing it. Moreover, Laitinen observed that large industrial firms and middle-sized labour-intensive industrial firms used an ABC type of system more frequently than middle-sized commercial firms. The proportion of the users of the ABC type of system in the first group was 27 per cent and in the second group 25 per cent, whereas it was only 16 per cent in the third group (Laitinen, 1995b). Further, in the study by Malmi, 14 per cent of Finnish metal engineering companies reported that they were already using, and 8 per cent were currently implementing ABC (Malmi 1996). In a later study, Malmi found out that the application of ABC was less frequent in other industrial sectors in Finland (Malmi, 1999). In conclusion, it seems that the degree of ABC-adoption has increased slowly, but the traditional product costing methods are still widely used.

3.3. Characteristics and Implications of ABC-Adoption

Based on the argument of the changes in cost structure, Bjørnenak (1997) assumes that units with high overhead ratios, that is, overhead costs compared to total value added costs (= the sum of direct labour and overhead), do have a different cost accounting system than firms with low overhead ratios; and further, units with high overhead ratios are among the first adopters of activity-based costing. The results of this study show that cost structures of ABC-adopters do indeed differ from non-adopters. Among ABC-adopters, the mean of overhead cost per cent of total value added costs is 76 per cent, whilst in the group of non-adopters the mean is 66 per cent. Thus, the result is in line with the proposition by Bjørnenak (1997).

Our second argument deals with the factors of production environment and the adoption of ABC. The only statistically significant connection was found between the degree of production automation and the adoption of ABC. These results are in contrast with the study by Ask and Ax (1997), in which strong correlations between three factors (the type of production systems, the number of products manufactured, and company size) and attributes of costing systems were found. Weaker correlations were found between three other factors (the degree of automation, high- vs. low-tech companies, and the degree of competition) and attributes of costing systems. On the other hand, Bjørnenak (1997) did not find any significant correlation between product diversity and the adoption of ABC. In addition, Dahlgren *et al.* (2001) found out that variables of production environment were not statistically significant differentiating factors between ABC-adopters and non-adopters. Thus, production environment does not seem to be an important explanatory factor in the adoption of ABC.

Instead, size of the units discriminates efficiently between adopters and non-adopters (Ask and Ax, 1997; Drury and Tayles, 1994; Innes *et al.* 2000). One quarter of the sample had adopted ABC, but it was more common in the group of large units (33 per

cent) than in the middle-sized units[2]. However, unit size may reflect an underlying factor like the degree of ABC knowledge (cf. Bjørnenak, 1997), but the data collected for this study do not allow an analysis of this factor. Finally, the adoption of ABC has no statistically significant correlation with the perceived financial performance of the units.

3.4. Perceived Problems in Product Costing

Respondents were asked to assess the importance of suggested problems of their product costing system. The measurement instrument was a five-item Likert scale (from 'not a problem' to 'an extremely large problem'). As shown in Table 4, the allocation of overheads, and data collection were regarded as the most problematic issues in product costing. When we again compare these results with those of Lukka and Granlund (1996), we may conclude that the most problematic issues remained the same during the 1990s. In contrast to Lukka and Granlund (1996), the allocation of production overheads to products, and the allocation of common costs to responsibility centres seemed to be less problematic than in 1992.

Table 4.The problems of product costing (1992 and 1999)

	Mean 1992	Mean 1999
Allocation of administration overheads to products	3,3	3,3
Allocation of sales and marketing overheads to customers		3,2
Data collection	3,2	3,2
Allocation of sales and marketing overheads to products	3,2	3,1
Allocation of production overheads to products	3,1	2,7
Research and development costs	2,6	2,7
Allocation of common costs to responsibility centres	3,0	2,7
Slowness of reporting system	2,7	2,5
Depreciation costs		2,1

The adoption of ABC does not seem to influence the perceived problems of product costing. The only exception is data collection: ABC-adopters have fewer problems with data collection than non-adopters. This is surprising, because one might easily think that the introduction and continuous use of several cost drivers create more problems in data collection than the use of cost centres in the process of product costing.

4. Conclusions and Implications of the Study

To sum up, our empirical data show that the use of full costing as an accounting principle increased in Finnish industrial units during the 1990s, and this line of development seems to be related to the more widespread adoption of ABC as a product costing method. This observation is in harmony with the results given by similar studies both in Finland and in other Nordic countries (i.e. Sweden and Norway). It is more difficult to relate our results to the research done in the UK and USA, because studies carried out in those countries do not reveal any uniform trend

[2] The unit size is measured by the number of employees. If the figure was within the range of 50 - 249, the unit was classified as middle-sized; if it employed 250 persons or more, it was regarded as large.

towards an increase in the use of either full costing or ABC. In the case of Finnish industrial units, our data permit the conclusion that the degree of ABC-adoption has slowly increased from 0 per cent to the level of 25 per cent, although traditional product costing methods like process costing and job-order costing are still widely used in practice and often in parallel with ABC. Further, the perceived problems of product costing seem to have remained the same despite the changes observed in costing methods.

The issue of ABC brings forth some interesting findings. Our empirical analysis corroborates the earlier findings that cost structure (cf. Bjørnenak, 1997) and size (cf. Ask and Ax, 1997; Drury and Tayles, 1994; Innes *et al.* 2000) do discriminate efficiently between ABC-adopters and non-adopters. However, we did not find any statistically significant relationships between the variables measuring production environment and the adoption of ABC (the only exception being the degree of automation in manufacturing). This is in contrast to the results of the study by Ask and Ax (1997), in which correlations were found between the variables representing production environment and attributes of costing systems. Another interesting finding was that ABC-adopters reported fewer problems with data collection for product costing purposes than non-adopters, which was contrary to our initial assumptions.

The diffusion of management accounting innovations, especially the adoption of ABC, has emerged as a research theme during the last few years (see Bjørnenak, 1997; Malmi, 1999; Innes *et al.* 2000). In Finland, ABC became widely known as a costing method in the late 1980s (the initial phase). This was followed by a take-off phase at the beginning of the 1990s as shown by surveys conducted during that period. The proportion of respondents having implemented ABC (or planning to do so) increased from 6 per cent in 1992 (Lukka and Granlund, 1996) to as high as 22 per cent in metal and engineering industries in 1995 (Malmi, 1996). However, during the latter half of the decade, the adoption rate of ABC seems to have levelled off. Our own study gave an adoption rate of 18 per cent in Finnish industrial units in 1999, and in the recent study by Dahlgren *et al.* (2001), the respective adoption rate was 16 per cent in Swedish manufacturing firms. The same kind of development cycle, that is, a growth phase followed by a plateau or even a decline in the adoption rate, has been reported elsewhere. For example, in the UK, both the use of and interest in ABC showed no increase from 1994 to 1999 (Innes *et al.* 2000). Further, it may be concluded that ABC has not replaced the conventional methods of product costing as they remain to be widely applied instead of ABC or in parallel with it.

Considering the slow growth in the adoption rate, the contribution of ABC as a product costing method may be called into question. Recently, the focus of ABC seems to have changed from a product costing method to the management of activities (i.e., Activity-Based Management) with a stress on the separation of value adding activities from non-value-adding ones (Jones and Dugdale, 2002). In this way, the value of ABC is primarily seen as supplying information to the continuous improvement efforts being implemented under the concept of ABM. By widening the scope of analysis, the life cycle of activity-based approach as a whole may turn out to follow another trajectory than the traditional S-shaped curve provided by the innovation diffusion literature (see e.g. Vuorinen and Leppänen, 1994; Malmi, 1999).

So far, research on the diffusion of ABC has been extended by the inclusion of the market and infrastructure perspective underlining the need to analyse the role of the supply side (consultants, software vendors etc.) in the diffusion process (Ask *et al.* 1996; Bjørnenak, 1997). Another attempt has been to establish a dynamic model to explain the diffusion of ABC by suggesting that the driving force behind management accounting diffusion varies in the course of diffusion. The early adopters are motivated by factors coming from inside the organisations, whereas later on the motive to adopt shifts to follow the fashion set by the promoters of ABC, and eventually, to imitate the organisations that have already implemented ABC. (Malmi, 1999) Taken together with the findings of this study, there exists a real challenge for future research on the innovative content of ABC and on the role of researchers in the diffusion of ABC.

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A CONTINGENCY APPROACH TO INTERNAL CONTROL FRAMEWORK

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Abstract
The contingency approach is widely developed in organization and management literature but is not, yet, used in an internal control research. The objective of this theoretical paper is to present internal control framework and create propositions about the effects of two contingency characteristics on the components of the framework. As a result, this paper shows that contingency theory provides new opportunities to research complex internal control systems.

1. Introduction

Internal control has received a great deal of attention in the last few years. Attention has however, mostly been directed to the lack of internal control systems. The need for effective internal controls is illustrated for example by the Barings Bank incident. A single trader was able to initiate and falsify records of series of trades that led to the downfall of a long-lived, worldwide organization. One of the main reasons for the Barings Bank incident has been ascribed to an ineffective internal control system (Gibson 1997). In 2002 internal controls play a significant role in the Enron case in the U.S., where accounting firm Arthur Andersen had the responsibility to audit Enron's financial statements and assess the management's internal controls on derivates trading. Cooperative work failed and the consequences are known worldwide. These fraud cases are just the top of the iceberg. When counting the sum of losses of these few cases we can understand how important a role internal controls play in enterprises. These kinds of situation create needs for internal control research, which has been very limited up to the present. This study presents an approach to researching and assessing internal controls in organizations. The paper is organized as follows. In the second section internal control is defined and the internal control framework is presented. The third section continues with a discussion of the relationship of the control framework to contingency theory. The aim is to present theoretical relations between these two approaches and give some examples of the situation. The paper ends with the conclusion.

2. Internal control

The definition of internal control has ranged from very narrow to broader definitions. The report issued by the Committee of Sponsoring Organizations of the Treadway Commission has provided a common definition of effective internal control, which satisfied different users. It states that the role of effective internal control systems is to provide reasonable assurance for the board of directors and management in the following categories (COSO 1992):

- They understand the extent to which the organization's objectives are being achieved
- Published financial statements are being prepared reliably
- Applicable laws and regulations are being complied with.

To achieve these objectives the organization should introduce an internal control framework and the management should organize an internal control system. The responsibility of internal auditing is to perform effective audits of the internal control system. The problem of organizing, auditing, and researching internal control systems is the complexity of internal control processes. The broad role defined by the COSO (1992) indicates that almost all organizational measures can be considered to be part of internal controls. The problem is that clear boundaries between internal control and non-internal control are missing (Kinney 2000, Maijoor 2000).

In the late 1800s and the early 1900s organization theorist Taylor defined organization structure, which was the 'one and only one'. In those times the environment was stable and organizations relatively simple. In the 20th century, organizations faced rapid change, larger and complex organization structures and with these changes questioned classic organization theory. As a result, with in the organization theory literature in the 1960s was developed a theory, which states that the appropriateness of the organization and the management system was contingent upon situational factors. This contingency approach is widely used for example in management control literature (see for example Fisher 1995). The contingency theory's main principles regarding internal controls are the following:

- There is no *one* best way of designing internal control systems with in different organizations
- There is no *single* internal control system that is equally effective in *all* circumstances.

The needs for an internal control system varies with he alternative characteristics, so the internal control system should be consistent with the situations with which the organization is faced. The interesting question arises at the end of 1900s in the internal control area: If there is no identical system of internal control in two alternative organizations, how can internal controls be assessed and judged to be effective or ineffective?

Consciousness of the missing standards produced plenty of internal control frameworks like COSO in the United States, Cadbury in the United Kindom, CoCo in Canada, and the King Report in South Africa, among others (McNamee and Selim 1999). These frameworks are partly concerned with the same aspects: risk evaluation, controlling inside rather than outside processes, and systematic monitoring. Although these control frameworks differ from each other in their focus, strength, and limitations, they all have the same goal: a functional internal control system.

The internal control framework COSO

The Internal Control – Integrated Framework (frequently abbreviated as COSO) is widely approved by U.S. and European organizations. This was one reason why it was chosen as a framework in this paper. Another reason was that the COSO provides an internal control definition serving the needs of all interested parties - management, audit committee, internal auditors, independent auditors, legislators and regulators as well as a standard against which an organization can assess its control systems and determine improvement. The COSO emphasizes the importance of management involvement in understanding internal control functions and establishing an adequate

and effective control system. Furthermore it places heavy emphasis on the soft, behavioural control used to manage an organization and ensure organizational effectiveness.

The COSO defines internal control as a process affected by an organization's management, board of directors, and other personnel. The process is designed to provide reasonable assurance regarding the achievement of objectives in the following categories:

1) Effectiveness and efficiency of operations
2) Reliability of financial reporting
3) Compliance with applicable laws and regulations.

With these objectives the COSO goes far beyond the narrow objectives of internal accounting control and covers three broad objectives; operational efficiency, financial reporting, and compliance with laws. Operational objectives pertain to the effectiveness and efficiency of operations including performance and profitability goals and safeguarding resources against loss. Financial reporting objectives concern the preparation of reliable financial statements, including prevention of fraudulent financial reporting. Compliance objectives pertain to adherence to laws and regulations to which an organization is subject.

Furthermore, the COSO report states that managements should take into consideration five essential components when planning an effective internal control system. These components and their linkages are presented in a Figure 1. The components are:

Control environment. This component establishes the foundation of the internal control system by providing fundamental discipline and structure. It consists of a number of elements such as integrity and ethical values, the management's philosophy and operating style, human resource policies and practices, competence of personnel and assignment of authority. It mainly sets the tone of the organization and influences the control consciousness of its people. The control environment serves as the foundation of the other components.

Risk assessment. Involves the identification and analysis by the management of relevant risk involved in achieving predetermined objectives. It requires identification and investigation of both internal and external risks. The management has to set objectives before they can identify the risks of their achievement and take necessary action to cope with the risks. Because of continuous change in operating conditions, risk assessment is needed to identify and deal with the special risks associated with the change.

Control activities. Policies, procedures and practices that ensure management objectives are achieved and risk mitigation strategies are carried out. These control activities are divided into three categories: operating controls, financial information controls, and compliance controls. Operating control activities are directed towards managing and monitoring the organization's operations. Financial information control activities are geared to ensure reliable financial reporting and safeguard the organization's assets. Compliance control activities are aimed at ensuring compliance with applicable laws and regulations as well as adherence to ethical guidelines and conduct.

Information and communication. This component ensures that relevant information is identified, captured and communicated in a form and time frame that enable people to

carry out their responsibilities. Information systems produce reports containing operational, financial and compliance-related information that make it possible to run and control the business. This factor should be built into the organization's information system in the design phase, along with internal control safeguards.

Monitoring. This covers the external supervision of internal controls by management of other parties outside the process or the application of independent methodologies, such as customized procedures or standard checklists by employees within a process. The monitoring component requires that the internal control system is monitored on both an ongoing and a periodic basis to remain effective. Ongoing monitoring is a continuous assessment of various factors through proper training and evaluation of personnel and supervision and implementation of recommendations provided by auditors. Periodic evaluation can supplement ongoing monitoring and should be used on an ad hoc basis. The scope and frequency of separate evaluations will depend on an assessment of risks and the effectiveness of ongoing monitoring procedures.

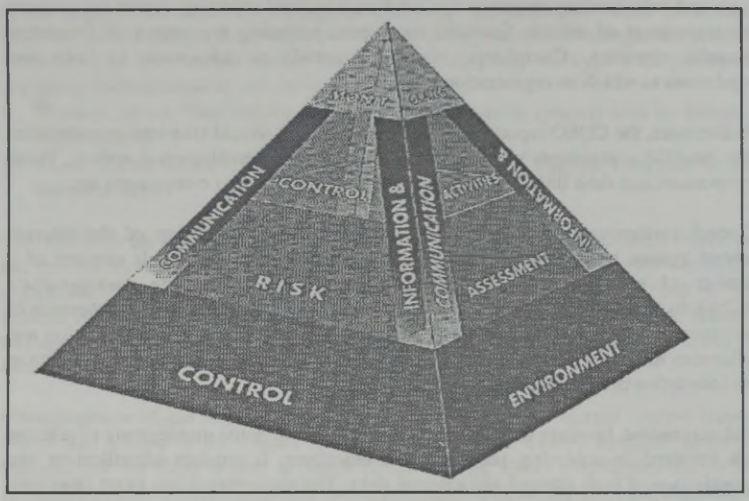

Figure 1. The components of an internal control (COSO 1992: 17).

The COSO report stresses that these interrelated factors of internal control must be presented and function properly in order to constitute an adequate and effective internal control system. The COSO report further states that, depending on circumstances, these components can be linked together in any sequence. However, it does not give specific indications of how alternative circumstances affect sequence.

3. Contingency approach and internal control structure

The COSO (1992) states that two organizations should not have similar internal control systems unless the organizations are completely identical. Anyhow, all organizations need internal control over their activities, but the control system can vary. This statement is parallel to contingency theory, which states that the applicability of control

mechanism is contingent on the circumstances faced by the organizations. Thus, it could be stated that the contingency variables have effects on internal control. The consequence of this is that when an organization undergoes some changes in contingency variables, the internal control system should be checked and reorganized in appropriate form. This is the way to ensure effectiveness of internal control systems. Figure 2 presents a simplified theoretical model of the impact of contingency variables on internal control effectiveness. The next section discusses the theoretical effects of two contingency characteristics, size and strategy, on the internal control components.

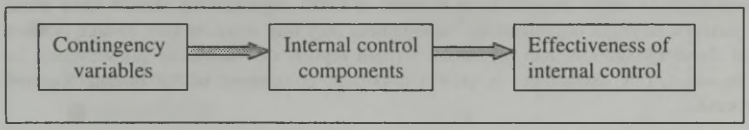

Figure 2. Theoretical framework showing the effect of contingency variables on internal control effectiveness.

Size of the organization

Contingency theorists have suggested that an organization's size has an effect on the organization's method of designing and using management systems. They have also proposed that increasing the size causes more specialized and sophisticated control processes (Hoque and James 2000). Furthermore, an organization's size is connected with its responsibilities; usually large, multinational organizations have more responsibilities for example in reporting issues than small domestic organization. These kinds of situation create alternative needs for internal control systems.

In small organizations the mode of control is less structured and less formal than in larger ones. It is partly because the strategy setter, usually the owner, is close to the operations. This person usually has very detailed information about operations due to direct involvement in operations and that way he/she can control operations by a face-to-face method. This causes in small firms that the *control environment* component to be more apparent in the actions and attitudes of the owner or CEO rather than in formal documents and written documents. Also the components *monitoring and control activities* are less formal and less structured in small organizations than in large ones. When the number of transactions and employees grows, more formal control activities and monitoring are needed to ensure that the organization reaches its goals. For example, the monitoring component includes internal auditing. In very large international organizations internal auditing is often done by internal auditors. The size is one of the important motives for employing internal auditors, because the cost of internal auditing should be covered somehow with the results of internal auditing. The problem of internal auditing arises when an organization grows from a small to a large one in a short time. When the number of transactions and employees starts to grow monitoring usually follows a step behind. The owner is not close to operations any more and part of the internal controlling responsibility is shifted for example to the controller or financial officer. If the size still increases, the organization is large enough to employ an internal auditor, but it is organized in 'the old way' as it used to be when the organization was half of the size. The problem in this kind of situation is that monitoring is too slight in relation to the size of the organization.

Furthermore the *information and communication* component is strongly affected by the size of the organization. Smaller organizations have advantages with regard to the communication component because there is greater opportunity for unofficial and face-to-face communication. Compared with large organizations the communication is more decentralized and official. This means that growing organizations should pay attention to organizing the information and communication component to keep internal control effective. Moreover the *risk assessment* component is likely to be less formal and less structured in small organizations than in larger ones. Even if risk assessment is more implicit than explicit, a small organization should have clear objectives. In small organizations management may rely more on face-to-face contact and direct interaction than on formal written reports of risks from subordinates. In both cases, risk assessment is very a important component in the internal control process.

Anyhow, even in the smallest firms, managers should install internal control systems to ensure that operations are effective, financial reports are being prepared reliably and laws are being complied with. As Figure 3 shows, the formality of internal controls increases with the size of the organization.

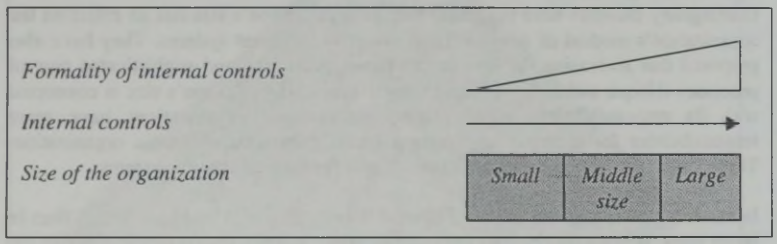

Figure 3. Introduction of the formality of internal controls in alternative sizes of organization.

Strategy of the organization

Strategy researchers have proposed that depending of the firm's strategy the control systems are used in different ways (see Miller and Friesen 1978, Porter 1980). Furthermore Miles and Snow (1978) have in their study clearly stated that the organization's control system should be congruent with the strategy. They branded well-known strategy types as prospector and defender, which are identified by the rate at which they change their products. The *prospector* competes through new products and market development with proactive environmental interactions while the *defender* operates in stable product areas and competes through cost leadership and quality. Simons (1987, 1990) used Miles and Snow's typology to find out how control systems vary between these strategy types. He stated that the defender requires a sophisticated control system and relies heavily on formal accounting procedures, cost control and trend monitoring. It implies that the defender needs a lot of updated information, and in the internal control framework it means that the *information and communication* component is very strong. Also because of cost control, the *control activities and monitoring* components are significant. The other strategy type, the

prospector, searches for new market opportunities and requires flexible structures that would de-emphasize for example accounting controls. This means that prospectors should have a strong *control environment*, which can ensure enough control consciousness when de-emphasizing controls. The prospector also needs information related to the future during market opportunity searching, which makes *information and communication* and *risk assessment* components important. Accordingly, strategy creates a particular need for internal control components. In Figure 4 the potential relationship between strategy types and internal control components is presented.

	Defender	Prospector
Control environment	Normal	**Strong**
Risk assessment	Normal	**Strong**
Control activities	**Strong**	Normal
Information and communication	**Strong**	**Strong**
Monitoring	**Strong**	Normal

Figure 4. Relationships between strategy types and internal control components.

Other contingency characteristics

Size and strategy characteristics show above that contingency theory and an internal control framework together offer a highly accomplished approach to research on internal controls in organizations. Contingency theory presents many interesting internal and external characteristics that have some documented effects on the management control system and thus may have some influence on internal control structure. *Technology* (Daft and McIntosh 1981), *manufacturing flexibility* (Abernethy and Lillis 1995), *organizational structure* (Merchant 1981), *environmental uncertainty* (Gordon and Miller 1976), *national culture* (O'Connor 1995) and many other characteristics create alternative possibilities of research on internal control systems. These alternative characteristics have not been empirically researched with terms of internal control framework yet and thus offer an interesting research avenue.

4. Conclusion

This paper has presented the internal control framework COSO and discussed the possible effects of contingency characteristics on internal control system. The aim was to develop understanding of the contingency nature of internal control. As shown above, the COSO framework has five interrelated components and, in theory, the weighting of those components depends on the contingency characteristics. In addition, two contingency variables were presented with examples of possible effects. These examples reveal that, in a sense, management, auditors, and researchers can use the contingency approach when assessing internal control structure in organizations. In this connection, the alternative kinds of organization can find appropriate weighting of internal control components using contingency characteristics. Furthermore, this paper emphasizes the need for internal control research and states that contingency theory offers a very useful framework for an approach to this subject. Additionally, to confirm these theoretical findings, empirical testing will be done in the near future.

Summary
Several events in the last few years have increased the importance of internal control to investors, auditors, management and governmental agencies. As a consequence, there is a growing need for internal control research, which has been very limited up to the present. This theoretical paper presents the internal control framework COSO and suggests propositions concerning the effects of two contingency characteristics, size and strategy, on the components of the framework. The paper shows, that contingency theory and an internal control framework together create new opportunities to assess and research internal control in organizations. To confirm these results, the paper promises empirical testing in the near future.

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EXCHANGE RATE RISK MANAGEMENT IN LARGE ESTONIAN EXPORTERS AND IMPORTERS: EMPIRICAL ANALYSIS

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Exchange rate (ER) risk management is important aspect of financial management in international firms. We may assume it in Estonian companies also when taking into consideration littleness and openness of Estonian economy. The purpose of current article is to study ER risk importance, measurement of ER risk and hedging ER risk in large Estonian companies. We study companies' attitude towards ER risk. Can we find out differences in ER risk management policy between companies in transition economy as Estonia and developed industrial countries. Study is based on survey among large Estonian exporters and importers.

We selected in total 00 largest importers and exporters at the beginning of 2001 according to Estonian foreign trade statistics. Totally it made 164 companies because 36 companies were large importers and exporters. We got back 58 filled questionnaires that makes response rate 35,8%. 81% of them were independently responsible for ER risk management and in 19% of companies parent company was responsible for ER risk management. Studying ER risk policy we selected only companies that had their own attitude (policy) towards ER risk. It makes 46 companies. Also We present percentages of all respondents in brackets if necessary.

The study is based on period from 1998 till the end 2000. Estonian crone was fixed with DEM and EURO (from 1. january 1999) during this time period. Therefore USD, Russian ruble, GBP, Swedish crone, Latvian latt and Finnish mark (in 1998) were most important "risky currencies" for Estonian companies.

ER risk management has been studied so far among companies in USA, Great Britain, Germany and other developed countries but not enough in context of small and open transition economy (Hakkarainen et al 1997, Hakkarainen et al. 1998, Batten et al. 1993) ER risk management in Estonian companies can differentiate from international practise due to following reasons:

- Knowledge about ER risk management and derivative usage is quite low.
- Derivative market is small and not liquid. That makes use of derivatives quite expensive.
- Estonian companies are very small comparing to foreign companies that makes complicates access to international financial markets and companies are unable to use economies of scale.
- Estonian companies have not experienced so far shock of devaluation of Estonian currency.
- Possible differences in culture of organisation and management.

According to theory companies in open transition countries should benefit most from hedging activity (difficult access to external financing and its high costs, high ER risk exposure and high growth potential (Allayannis et al. 2001).

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The biggest currency risk in observed period was related with USD (standard deviation was 11,07%) and Russian ruble (was devaluated in 1998).

We compare the results of the study, if necessary, with results of the study about interest rate risk management in large Estonian companies (Juhkam 2002).

In table 1 we can see respondents' average turnover, total assets, number of employees, debt ratio and ROE.

Table 1

Characteristics of respondents

Average turnover	*Average assets*	*Average number of employees*	Average debt ratio (debt/assets)	Average ROE
340 mil.	17 mil.	348	60%	29%

Source: author's calculations

Importance of Exchange Rate Risk

We found out that 22 companies considered ER risk at least *equally important* comparing other risks (39%) and 29 were considered at least *almost equally important* (51%). The rest of respondents considered ER risk less important than other risks. We can explain it by the fact that large part of foreign trade is made in DEM or in Euro. Other studies in USA, UK and Asia indicate that ER risk is more important than in Estonia (Marshall 2000). Other risk (liquidity risk, commodity risk, interest rate risk, operational risk and etc.) may also be relatively more important in Estonia than ER risk.

Most important ER risk sources are revenues, expenditures, accounts receivable and accounts payable. Investments' and financing' ER risk exposure was not important.

We can also conclude that import was more important ER risk source than export. This is supported by the fact that Estonian current account in balance of payments was negative during 1998-2000 (Eesti Pank, http://www.ee/epbe/sdds/balance.html.et) and import may be more "risky currency" based (mostly USD) than export that is rather Euro based.

Quite a many companies had decentralised ER risk management (47%). Other countries' (USA and Germany) experiences indicate that ER risk management is mostly centralised (Bodnar et el. 1998, Glaum 2000). Centralised ER risk management enables manage net positions flexibly, avoid expensive overhedging and usage of economies of scale. It also favours access to international financial markets.

Only 9% had established written ER risk management policy. Similar study in Finland indicated that 73% of companies had established written ER risk policy (Hakkarainen *et al* 1998). It refers to the low risk culture and to unimportance of ER risk exposure in Estonian companies.

CFO (46,5% of companies) and CEO (21,5% of companies) were most frequently responsible for ER risk management in Estonian companies. Only one company had employed risk manager.

After introduction of Euro in 1999 ER risk decreased for 64% respondents. Positive effect of EURO implementation was due to the fact that many Estonian trade partners, members of EMU, fixed their currency with Euro (for example Finland, Austria, Italy, France, Spain, Belgium, Ireland). Finland generated over 70% of all Euro based payments after introduction of Euro (Varblane, lk. 139).

Transition to Euro enabled decrease costs related with Euro converting and ER risk hedging with derivatives (forwards, swaps and options) that made international trade cheaper. Demand for exchange rate derivatives decreased (Bank of Estonia, www.ee/epbe/statistika/itp.html).

Measurement of Exchange Rate Risk

80% of companies measured ER risk exposure (interest rate risk was measured in 76% of companies). Only 28% measured ER risk always and 52% measured it sometimes. We can conclude that ER risk was measured unregularly.

Transaction ER risk exposure is related with foreign currency based accounts receivables and accounts payables. 53% of companies measured transaction exposure. Mostly they applied for that purpose scenario analysis. Transaction exposure considered to be the most important ER conception in USA and German companies (Glaum 2000, Marshall 2000) and also in Finland (Hakkarainen *et al* 1998).

Translation (accounting) ER risk exposure measures ER risk impact to value of monetary assets (cash, loans, bonds, stocks), liabilities and to value of foreign subsidiaries. Revaluations are made at the end of economic year. 47% of companies measured this kind of risk exposure, mostly using scenario analysis.

Economic (strategic) risk exposure estimates ER risk impact on:

- Future and current cash in- and outflow (including international competitiveness). This conception was used in 38% of companies.
- Cash generated by company (EBITDA). This was used in 45% of companies.
- Stock price of company (only in 13% of companies). None of them was a listed company.

There are many complications in measurement of economic ER risk. Economic ER risk exposure was measured in 55% of companies at all. For example in Germany it was applied in 67% of companies (Glaum 2000). Scenario analysis was again used as a main method for economic ER risk management.

Therefore we can conclude that mostly economic and transaction ER risk exposure conception was used in Estonian companies that is consistent with importance of ER risk sources (revenues, expenditures, account receivables and account payables).

As we can see in table 2 executive management was mostly informed at least once a month (57%) and at least once a quarter (79%) about ER risk exposure.

Table 2

Frequency of informing executive management in companies

Frequency	*% of corporations*
Once a year	22%
Once a quarter	22%
Once a month	44%
Once a week	10%
Every day	2%

Source: author's calculations

In most cases CFO measured ER risk exposure in companies.

Companies which measured ER risk more frequently informed their executive management also more frequently (Spearman's correlation coefficient was 0,4, p=0,006) and also hedged ER risk more frequently according to written ER risk policy (Spearman's correlation coefficient was 0,33, p=0,047).

Exchange Rate Risk Hedging

74% of companies confirmed that they hedge ER risk. In comparison interest rate risk was hedged by 75% of all companies. Estonian companies are risk aversive to these risks. But in 21% of cases exchange rate risk was hedged always (in case of interest rate risk 15%). 60% of cases ER risk was hedged only sometimes and selectively. Mostly ER risk was hedged selectively in German companies also (Glaum 2000). Thus ER risk hedging is substantially speculative and profit-oriented. Hedging decision depends on view about ER future movements of person who is responsible for ER risk management. Companies hedge in that case a certain ER predictions that could have negative impact on company's performance (Lessard and Nohria 1990). Companies believe that they are able to predict systematically ER future movements, which conflicts with efficient market hypothesis. If we assume that currency markets are efficient then predictions and speculations in that markets are useless and they do not add value to companies (Glaum 2000). Thus ER risk corporate hedging policy should stipulate extent of hedging, not timing of hedging.

Companies hedge mainly ER risk that is linked with revenues, expenditures and also transaction exposure (see table 3).

For comparison, German companies hedged mostly (64%) transaction ER risk exposure also (Glaum 2000).

Table 3

Hedged ER risk sources in companies

	Investments	*Loans*	*Revenues*	*Expenditures*	*Accounts receivable and accounts payables (transaction exposure)*
% ER hedgers	14.3%	21.4%	62.1%	51.7%	60.7%

Source: author's calculations

46,4% of Estonian companies hedged little ER risk and only 10,7% of companies hedged all risk (see table 4). To author's opinion companies leave ER risk too much unhedged as non-financial companies has no competitive advantage to take ER risk.

Table 4

Extent of ER risk hedging

	% of hedgers
A little	46.4%
Most of the risk	42.9%
All risk	10.7%

Source: author's calculations

We found out that companies that hedged ER risk to larger extent did it according to written ER risk policy.

Only 7% of companies had established ER risk limit (9% for interest rate risk). Thus Estonian companies do not perceive clearly their ER risk tolerance level.

Next we studied ER risk hedging methods. We can divide them into in-balance sheet (internal) and ex-balance sheet (external) methods. Derivatives (mainly plain vanilla forwards, swaps and options) are used as ex-balance sheet methods for ER risk hedging.

As we can see in table 5 forwards and swaps were most frequently used derivatives. Totally 66% of hedgers used ER derivatives that is higher than in the case of interest rate risk hedging (Juhkam 2001).

Forwards are preferred due to the their simplicity and they are used for hedging longer-term exposure (Strelkova 2001). Different studies nave noted that forwards are used mainly for managing transaction exposure in USA, UK and Asia (Marshall 2000, Bodnar et al. 1998). Derivatives usage for economic exposure is complicated. It is more easy to use internal methods (including diversification of production, price policy, cash flow management, matching currency cash inflow and cash outflow by time and amount) for hedging long-term economic ER risk.

Table 5

Usage of derivative for ER risk and interest rate risk hedging in Estonian companies

	Forward	*Swap*	*Options*	*Other derivatives*	*Derivatives usage at all*
% ER hedgers	46%	29%	10%	10%	66%
% all respondents of ER study	32%	20%	7%	7%	46%
%IR hedgers	24,2%	30,3%	3%	-	45%
%all respondents of IR survey	23%	18,5%	2,5%	-	34,8%

Source: author's calculations

In comparison according to study by Bodnar and Gebhardt (1998) 44,8% American and 74,6% of German companies used ER derivatives. In case of interest rate derivatives these indicators were 43% and 69%. We found that exporters (67%) used ER derivatives more than importers (46%). Companies are more ER risk aversive in case of export than import. It can be explained by profit margins that are smaller for exporters (0,9%) than importers (3%). That makes profit and competitive advantage of exporters more sensitive to ER risk. Importers may also more easily impose their terms (prices and trade currency) to sellers.

Next we estimated frequency of derivatives use. Only 30% of companies that used derivatives used them frequently (in case of interest rate derivatives it was 13%). Comparing to other countries derivatives are used in Estonia much rarely.

Further, We tried to find explanations for the rare derivative usage. We let the corporations estimate the relative importance of different reasons on a scale from one to five, "one" indicating not important, "five" very important. Additionally we asked whether some specific reasons were important or not. This way We could place the reasons for rare interest rate derivative usage in order of importance (order of important reasons for rare usage of interest rate derivative are in brackets):

1) Preference of on-balance sheet ER risk hedging methods (2)
2) ER rate risk is not important (1)
3) Derivatives are too expensive (3)
4) Little knowledge and experience in the field of derivatives (4)
5) Parent company is responsible for ER risk management (6)
6) Minimum transaction size is too big (5)
7) Derivatives are prohibited in company (7)

Study among Latvian companies confirmed also expensiveness of derivatives, little knowledge and experience and preference of on-balance sheet methods (Strelcova 2001).

Results are consistent with conclusions of other studies (McRae et al. 1980, Hakkarainen et al. 1998) that companies use at first on-balance sheet methods and after that hedge remained ER net position using derivatives which are more flexible but expensive instruments for hedging.

As most important on-balance sheet methods for Estonian companies were usage of Euro in international trade (88%) and currency-based cash flow matching by time and quantity (35,7%).

In conclusion two most important ER risk hedging methods were trading in Euro and forwards. We also found out that 48% of companies need more additional know-how in the field of derivatives and ER risk management. Still, ER risk management competence was higher than in case of interest rate risk management.

Summary

Both financial and non-financial corporations are exposed to ER risk. ER risk is particularly important for exporters and importers. The purpose of the current article was to study ER risk management of exporters and importers in a small and open transition economy. Study was based on survey in largest 100 exporters and 100 importers. Period of study was from 1998 till 2000, when USD and Russian ruble involved biggest ER risk for Estonian companies.

ER risk was considered as less important comparing to companies in developed countries (USA and UK) and Asia. ER risk management was also too much decentralised, without clear written policy. CFO was mostly responsible for ER risk management. Only one company had employed risk manager.

Most of companies measured ER risk exposure but did it usually unregulary Companies confirmed the use of three ER exposure conceptions equally.

Most of companies are risk aversive to ER risk, but they usually hedge ER risk selectively according to expectations about interest rate movements. In case of exchange market efficiency Estonian companies should avoid this kind of hedging, because they do not have ability to make systematically correct predictions of ER movements.

Companies preferred hedge more currency based revenues (exporters) than expenditures (importers) that can be explained by the different profit margins between exporters and importers. Companies usually do not perceive ER risk tolerance level.

Companies do not use derivatives frequently. Most "popular" derivatives are forwards and swaps. The usage of ER derivatives is rare because of its expensiveness, and the lack of knowledge in the field of derivatives. Usually companies preferred to use on-balance sheet methods to derivatives for ER hedging. Main on-balance sheet methods are Euro based trading and currency cash flow matching by time and quantity.

At last we recommend for companies:

- Clearly specify company's attitude towards ER risk and establish ER risk limit.
- To centralise ER risk management,
- Avoid speculative ER risk hedging

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APPLYING THEORY OF CONSTRAINTS IN TACTICAL AND STRATEGIC MANAGEMENT

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Abstract
The common goal of different strategic management systems and methods is to help an organisation to focus on making decisions helping to increase positive cash flows from main activities. One of the modern systematic management methodologies is Theory of Constraints (TOC) developed by Dr. Goldratt in '90s. Dr. Goldratt has promoted TOC as an opposite approach of Activity Based Costing (ABC) and claimed that in constrained situations TOC gives managers an opportunity to make better and more profitable decisions than ABC. As an answer to the accusations Kaplan and Cooper have concluded in their book „Cost and Effect" that TOC might be an effective approach on operational level in short term, but it is not suitable for long term decision making. The purpose of this article is to describe TOC principles for tactical decision making, and how TOC can be used for long term strategic decision making.

1. Principles of Theory of Constraints

One of the main assumptions of TOC is that the goal of a for-profit organisation is profitability – make more money now and in the future. Business organisations are considered as systems and achieving its goal as a process. The assumption is that the performance of an organisation is constrained by very few variables – can be understood by analogy between system and a chain. Any business can be viewed as a chain of linked processes that transform some input into a sellable product. The most effective way to improve the strength of the chain is to identify the weakest link and strengthen it (Smith 2000, p. 32). Hence, an organisation can improve its performance rapidly by focusing all its effort and resources on one or two weakest links – constraints.

Increase in any other resource than a constraint will not yield to better performance results and therefore such increase is a waste. Lets take for an example a business, which uses two types of machines A and B, and the constraint of the business is the machine B. The business has an opportunity to invest 100 000$ to improve productivity of machine A by 15% or it could invest 200 000$ in order to improve productivity of machine B by 10%. As long as the constraint is machine B and they have no other mean to increase its productivity, they should invest into machine B and disregard the investment into machine A. Investing into machine A would be an extra cost as the investment would not increase business's productivity and profit. As the level of business's performance is determined by the constrained resource all other resources should be subordinated to the constraint in order to assure the total use of it. This means, that no other resource except a constraint can be used 100% - all other resources have to be under utilised to have a protective capacity. This is the biggest difference between TOC and other management systems: TOC claims that all resources are not equal. TOC is an unbalanced management system.

To measure the effect of the changes and goal fulfilment in for-profit organisations three measurements are defined (Goldratt 1998, pp. 84-85):
Throughput – the rate at which the organisation generates money through sales (technically sales minus truly variable expenses).
Inventory or investment – all the money organisation invests in purchasing things the organisation intends to sell (work in process, raw materials, plant, machines etc.).
Operating Expenses – all the money the organisation spends in turning inventory into throughput.

By this definition amortisation and most salary expenses are not considered truly variable costs and are allocated to operating expenses. The main importance of these measurements is their order. By TOC businesses' should maximise their throughput while decreasing their inventory and operating costs. Focus is on throughput and only after that on costs. Reasoning is that business can decrease its costs only to zero, but can increase its throughput theoretically indefinitely (Corbett 1998, p.146). TOC considers these three measurements to be enough for filling the gap between everyday decisions, and net profit and ROI. (see formulas 1 and 2).

(1) $NP = T - OE$

(2) $ROI = \frac{T - OE}{I}$

Where:

T	- total throughput ($)	NP	- net profit
OE	- total operating expenses ($)	ROI	- return of investments
I	- total investment ($)		

These three measurements can be used for valuating any decision's effect to profitability. The goal is not to improve one of the measurements alone, but all three together. Ideal decisions would be ones increasing throughput, decrease investments and operating expenses at the same time. Although there are only three main measurements, they have created a lot of discussion and misunderstanding. Hereunder some of them are discussed.

Throughput (T) is defined as the rate at which the organisation generates money through sales. Word "rate" shows that money is generated during specific period of time. Phrase "through sales" is added to the definition for production companies. Dr. Goldratt found that many production managers think that if something is produced, this should be considered as throughput. Throughput means here getting money into the company and therefore the phrase "through sales" was added. (Goldratt 1990, p. 19). One of the biggest problems about this definition is computation of throughput. Technically it is sales price minus totally variable costs (TVC). Balderstone and Keef made in their literature research two conclusions: 1) There is a lot of misinterpretation of differences and similarities of throughput accounting and contribution margin associated with the management tool of variable costing. 2) It is clear that throughput and contribution margin are very similar, if not identical, theoretical constructions. Many sources define throughput misleadingly: sales price minus material costs. Balderstone and Keef speculate that one reason for leaving out variable direct labour cost are Dr. Goldratt's illustrative examples where no variable direct labour costs exist. As Dr. Goldratt believes, that labour costs are often considered variable even though workers' salary does not depend on production. Therefore he tries to emphasise such cases and does not consider cases where labour force is variable

direct cost. This is a reason for a belief that while computing throughput no labour cost should be discounted. Finally Balderstone and Keef conclude, that throughput is selling price minus TVC. Which costs are TVC depends on the situation and decision at hand. Schragenheim (2001) defines TVC as costs needed for producing and selling one additional unit. If it is not clear does an additional unit create the cost under consideration (for example salary) then this cost is not used for computing throughput. If producing 100 000 additional units create additional costs, like additional shifts, then it should be interpreted as purchase of additional capacity and costs should be added to OE. However, purchasing capacity as needed is limited and when it is done regularly, the costs of that type of flexible capacity should be included in the computation of throughput.

Operating expenses (OE). For some reason it is believed that TOC considers operating expenses to be fixed. Actually TOC defines operating expenses as costs that are not truly variable. It does not matter are these costs fixed or not. (Corbett, p. 32).

2. Considering constraints in decision making. Fixed capacity scenario

TOC claims that in order to make solid decisions one has to consider above mentioned three measurements in the context of how the decision effects the constraint. By itself the constraint consideration in decision making is not something new to managerial accounting. The following is management accounting definition of relevant information taken from the book "Introduction to Management Accounting" (Horngren *et al* 1993, p.26): "Relevant information is the predicted future revenues that will differ among alternative actions. The existence of a limiting factor changes the basic assumptions underlying the cost and revenue opportunity of a potential action." In spite of that none of the new concepts like activity-based costing (ABC), activity-based management, and economic value management (EVM) take into account constrained resources (Smith 2000).

For emphasising how important is to take into account limiting factors during decision making an example from T.Corbett's book „Throughput Accounting" (1998, pp. 82-92) is presented. In the example the production capacity does not change. A company produces two types of products S and R using machines A, B, C, D, and materials R1, R2 and R3 (see Tabel 1). There is only one piece of every machine and to finish a product raw material has to processed with the same machine a couple of times. The cost of materials for product R is $45 and for product S $42.

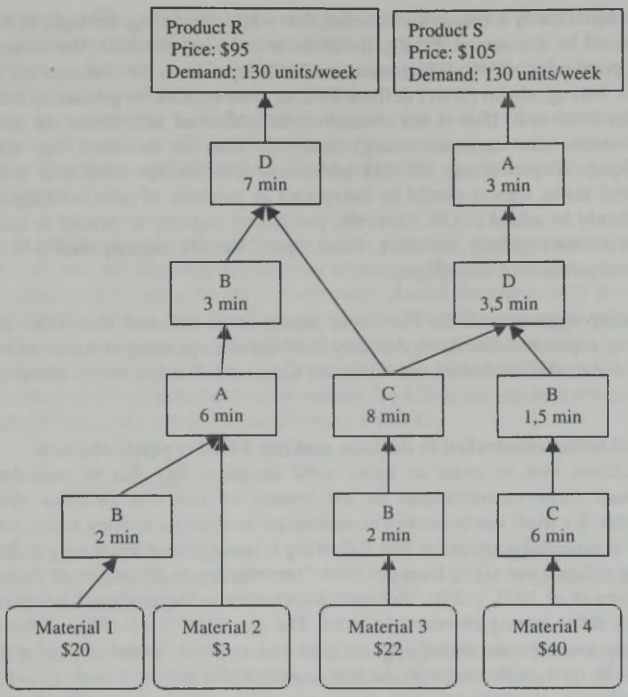

Table 1. Process flow.

As shown in Table 2 the company can not satisfy all demand, because the machine C does not have enough capacity. In this case to maximize the company's profit, managers need to know which product is the most profitable one, and then sell all of its demand and only then, if there is time left on resource C, sell the other product.

Table 2

Total Time Necessary for Producing R and S

Resource	Minutes necessary for producing R		Minutes necessary for producing S		Minutes necessary for producing for producing 130 R and 130 S		NM/AM %
	Producing one unit	Producing 130 units	Producing one unit	Producing 130 units	Necessary minutes (NM)	Available minutes (AM)	
A	6	780	3	390	1170	2400	48,75
B	7	910	3,5	455	1365	2400	56,88
C	8	1040	14	1820	2860	2400	119,17
D	7	910	3,5	455	1365	2400	56,88
Total	28	3640	24	3120			

Table 3

Tracing Activity Costs to Products by ABC

Activity	Activity Cost	Cost Driver	Amount of Cost Driver	Cost per unit
Production	4730	Resource hour	160	29,5625
Quality Testing	3024	Test Time (hours)	40	75,60
Transport	4246	Kilos	4000	1,0615
Total	12000			

By ABC the costs of activities have to be traced to the products. In order to do this cost drivers have to be identified by cost driver capacity and the total cost per unit must be calculated (see Table 3).

Table 4

Total Cost by ABC

Costs	Cost Driver	Shares of Drivers		Cost Driver Rate	R cost, $	S cost, $
		Product R	Product S			
Direct Materials					45	42
Production	Resource hour	0,467	0,4	29,5625	13,81	11,83
Quality Testing	Test Time	0,13	0,2	75,60	9,828	15,12
Transport	Kilos	10	2	1,0615	10,615	2,123
Total					79,253	71,073

As shown in Table 4 by ABC the product R is more costly than S. As product R has lower price than S ($95 and $105 accordingly), then the only conclusion is that the preference should be given to product S and if there is any time left on resource C, we should produce R. The same conclusion would have been made if only direct material costs were subtracted from product price. Producing 130 units of S will still leave 580 minutes available on resource C, which allows for production of 72 units of R.

Table 5

Product Mix Maximising Profit by ABC

Cash Flows	72 units of R	130 units of S	Total
Revenue	6840	13650	20490
Material Cost	-3240	-5460	-8700
Gross Margin	3600	8190	11790
Operating Expenses			-12000
Maximum profit			-210

According to the ABC analysis given above (Table 5) the company can not generate profit in current situation. Therefore the company should sell more product S to make a profit. Lets assume, that demand for product S can be increased to 171 units.

Table 6

Profit by New Scenario. ABC Approach

171 units of S	Cash Flow, $
Revenue	17955
Material Cost	-7182
Gross Margin	10773
Operating Expenses	-12000
Maximum profit	-1227

In spite of choosing the more profitable product and using all the capacity the company's losses increased (see Table 6). The reason for this result can be that the constraining resource was not considered. Hereunder is TOC based solution to the problem.

Table 7

Products' Profit by Constraint

Product	Price, $	Totally Variable Costs (TVC), $	Throughput per unit (Tu), $	Time on Capacity Constrained Resource (TCCR)	Tu/TCCR.
R	95	45	50	8	6,25
S	105	42	63	14	4,5

According to data in Table 7, the product R has higher profitability per constraint unit. Profit per minute of machine C is $6,25 compared to $4,5 of product S. The result is opposite of ABC's. When maximizing the production of R there is enough time left for producing 97 units of S. This will lead to profits of $611 compared to losses by ABC scenario (see Table 8).

Table 8

Product Mix Maximizin Profits by TOC

Product	Mix, units	Acum. Utiliz. of CCR, %	Total Throughput per Product, $	Operating Expenses	Net Profit
Product R	130	43,33%	6500		
Product S	97	56,58%	6111		
Total		99,9%	12611	-12000	611

If the company is able to increase the demand up to the capacity of machine C, then the profit would increase even more (see Table 9).

Table 9

Profit by New Scenario. TOC approach

Measure	Product Mix	Constraint use, %	Cash flow, $
Product R	300	100%	15000
Operating Expenses			-12000
Net Profit			3000

Presented example shows that tracing costs and not considering constrained resources can lead to loss making decisions. Still, it could be argued, that cost drivers were chosen on wrong bases and therefore ABC lead to loss making decisions. This criticism means that in case of constrained resources choosing cost drivers is very difficult. If it is so and TOC principles are easier to use and give less erroneous answers in such situations, then they should more preferable.

4. Considering constraints in decision making. Variable capacity scenario

Schragenheim (2001) argues, that even if a company can freely decide in the case of every single order to take it or not, and is able to prioritize all order by throughput per constraint unit (T/CU) producing by this list may not lead to profit maximization. This is due to assumptions T/CU measurement in based on:

1) A company has an inside capacity constraint;
2) The decision under consideration does not affect the current constraint.

If the first assumption is not valid, then company's constraint is market demand and T/CU is infinite. In this case some TOC experts claim that the order with biggest throughput should be preferred. Shragenheim argues, that there are two reasons why T should not be used in this case:

1) If the sales force can successfully push only limited number of products and this limits total throughput, then the company has a constraint and priorities should be calculated accordingly;

2) In elevating the market constraint the company should consider the identity of the emerging capacity constraint. Hence, it seems that the company should base its efforts to get more markets on the relative priority dictated by the future capacity constraint. The problem of trying to use the T/CU of the future constraint as a priority measure is that it would push another resource to emerge as a constraint.

This situation is illustrated in Table 10. Lets say that a company has to choose between orders X and Y. Using throughput or T/CU based on the most constrained resource A as an measure to compare orders, the X seems more profitable. But filling the order X turns resource B into a constraint. This means that a company might not be able to fulfil on-time existing orders and X or extra capacity buy-in is needed, which decreases profitability.

Table 10

Scenario illustrating problems with T/CU

	Available Resources	Order X	Order Y	Use of resources for X	Use of resources for Y
Resource A	10	2	5	20%	50%
Resource B	20	30	15	**150%**	75%
Resource C	150	40	50	27%	33%
Throughput		60	50		
T/CU (by resource A)		30	10		

Source: Authors.

Solution offered by Shragenheim (2001) is to calculate ΔT-ΔOE, where ΔT and ΔOE are changes in T and OE generated by the decision at hand. Using ΔT-ΔOE allows to consider the changes of T and change of the constraint, hence considering direct and indirect impacts as well. The change of T comes from three sources:

1) Direct change from decision at hand (like increase of revenue).
2) Possible losses from lack of capacity. As resource which loses protective capacity can not subordinate to the constraint the company may lose the ability to manage the old or the emerging constraint after the decision is made.
3) The connection between orders. Taking one order today may create additional sales in the future or refusing from an order may create losses of orders in the future.

In order to make future decisions and define which products are the most profitable Schragenheim (2001) finds necessary to specify product definition. Operation management looks at a product according to the bill-of-materials and routings that are associated with it. Sales has a very different perspective. A "product" is a whole package of items and services for a certain price. Hence, the use of the same word for the two different perspectives is confusing and misleading. Schragenheim (2001) suggest term *t-generator* to denote a single sale that includes any package of physical products and services for a certain price. Selling a single copy of a book to an incoming customer for $20, selling the same copy through the Internet to an overseas customer for $27.95 and selling 500 copies to a chain for $6000 are three different t-generators, while the product is the same one: a copy of a certain book.

In order to evaluate larger decisions, and possibly a whole array of decisions, we have to have the current global activity defined as all the t-generators that are sold now and the resulting load profile on existing resources and the T, I and OE generated. It is not enough to note the current capacity constraint. In order to evaluate the possible emergence of new constraints and the possibility of adding capacity, we need to have the current global activity as a reference and the basis for future development. Fortunately, the number of non-constraints that might emerge into a constraint is small. Much more difficult is to determine how big could be the load and the protective capacity. Schragenheim (2001) suggests that the load of a constraint should be between 90-100%. The constraint should never be loaded 100% because then it loses flexibility and may lead to poor due-date performance. Harder is to find an answer to a question, how much could the next most loaded resource after the constraint be loaded. There can be no single formula. Still there is one rule of thumb: the next most loaded resource after the constraint should be loaded less than the constraint. The actual number depends on production process.

In conclusion Schragenheim (2001) suggest that one needs following information in order to make solid decisions by TOC:

1) A representative list of all the current sales or short-term predicted sales. The list is organized as t-generators: various packages of the basic products along with their actual or predicted quantity and the price tag. For every product the amount of truly variable costs that is associated with it Based on above, every t-generator appears with its associated T;
2) A list of the basic products and services as understood by the operational system. The truly variable costs that are associated with every unit of product or service;
3) A list if the critical resources. Only resources that have a fair chance of becoming constraints should appear. For every resource, its relative capacity investment for processing each product. Various ways where capacity can be added or reduced. Every way should note the minimum unit of capacity that can be added and its cost. For instance, overtime may be such a way. Suppose the minimum quantity is one hour. Adding an employee may add a full man-month of capacity for a different level of cost. The current monthly capacity available for that resource;
4) User defined variables. Maximum load on the constraint the company's performance can tolerate. Maximum load on a non-constraint the operational system can tolerate and still perform well.

Based on the above inputs the ΔT-ΔOE can be fairly estimated for every market opportunity that is considered. The algorithm adds the opportunity to the full current list of sales and calculates the total T generated and the load profile. The user checks the load profile and either confirms it is doable, or trims some of the less desired t-generators of adds capacity. Of course the software can not be trusted 100% as it may suggest to trim half of a t-generator what is actually one order.

5. Management of Constraints in Long Term

Strongest criticism to TOC is towards its focus on-short term decision making. Quoting Kaplan and Cooper from „Cost and Effect...": " TOC...is persuasive and logically correct given the problem it is set out to solve. This problem is how to maximize throughput when the organization has a fixed supply of resources, when its expenses and spending for next period – other than materials –have already been designed, when its prices have been set, and when its customers order shave been received (p. 132). We do not say that the assumptions underlying TOC are invalid. They are an excellent approximation of reality for the problem TOC has been designed to solve: short-term product mix and scheduling of bottleneck resources." As described in previous chapter the criticism towards fixed operating expenses is unfounded and TOC can be used in situations where operating expenses change. Still, the question remains, is this enough for making TOC applicable for long term decisions?

As Kaplan and Cooper rightfully note all costs are in long term variable and company's constraint changes location. If a company does not know, where its constraint would be in the case of long-term decision at hand, and there is no opportunity to find it out, then all resources seem to become equally important for the company. As all resources are equally important, then there is no difference into which improvement project to invest, because a local improvement in any part of the organisation would improve the performance of the whole organization and increase profits. The list of priorities should be made based on improvement rate of local performance – the projects improving local performance per investment dollar the most should get the highest priority. It seems, that managers are in the situation, where assumptions underlining ABC principles hold and TOC assumptions do not. Hence, it seems logical to use TOC for short term and ABC for long term decisions.

The problem is that even in long term the company is still a system and therefore at any moment of time a constraint limits its performance. If a decision is made without the knowledge of the location of the constraint, the effectiveness of the decision depends on the luck of the decision maker –did s/he hit the constraint or not. The belief is that in order to increase revenue in long term one has to increase operating expenses (for example invest into production capacity). If decision makers do not know the location of the constraint there is a high probability that investment increases only operating expenses without increasing company's performance and revenue. There is also tendency to invest into additional capacity with a hope to increase demand or increase production capacity when demand is at its peak. In the first case the constraint might be in company's marketing activities and increase in production capacity will not address it. In the second case there is a fair chance that the demand will fall and a company will have too much extra capacity. In both cases

if the demand is significantly lower than expected the company will not be able to create demand for its capacity. Such scenario requires decreasing of capacity, hence operating expenses. If a company is not able to manage its constraints in a long run and follows above described method of trial and error, then operating expenses are very variable indeed. Unfortunately this is not a very effective nor positive variability.

Of course the scenario described above does not hold for all companies. Many managers of companies have developed quite good intuition for targeting the constraint and can hit it with high probability. Still, even for these managers it would be helpful to be able to consciously manage constraints even in long run and know where the next constraint will emerge. Although they are rarely described TOC body of knowledge includes principles for strategic management and decreasing the negative variability of costs described above.

6. TOC Principles for Strategic Management

TOC defines to prerequisites for for-profit organisation goal fulfilment i.e. assure short and long term profitability (Goldratt, 1998, p. 263): 1) Assure secure and satisfactory working environment for employees now and in the future and 2) Assure market satisfaction now and in the future.

These are prerequisites for the goal achievement meaning that these should not be maximized but kept on some necessary level. These prerequisites are bases for principles of strategic management and help to decrease the fluctuation of costs.

For constant improvement assure security and satisfaction of employees. Common problem for many companies is over capacity of workforce after an implementation of an improvement project. Some people become useless because there is no job to give them. Here comes a dilemma: downsize the workforce or not. A company wants to lay off the people because they are unnecessary expense and capacity. These people do not help to increase profits and only create expenses. On the other hand, those people the company wants to lay off are the ones who made the biggest effort to implement the improvement project. If they had not done so, there wouldn't be an improvement project and an extra capacity problem. If the company lays off the most eager improvers and leaves jobs of employees in other departments are constantly overloaded with work and don't improve, the management officially waves the sign "Employees, please improve your performance so that we could lay you off in January!". By TOC principles emergence of such a dilemma is a clear sign that constraint is on the market i.e. demand is lower than capacity because of management and not because of marketing people. Company's management has to be prepared, that any successful improvement program creates free capacity and they must have a plan on how to use this opportunity to increase companies profits. This is much harder than just laying off people, but assures less variation in motivation and costs.

Keep the constraint in a manageable place. Such place is company's production or service process. If the constraint is the market, the demand should be increased over the production capacity. TOC uses for this the techniques of "Mafia offer" also called "Irresistible offer" of "Unrefusable offer". In short these techniques are based on an assumption that in addition with satisfaction all companies create problems to their

customers. These problems come from company's production or servicing policies, and do not allow the client achieve its goals on a higher level. Identifying these problems and creating offers that will help customers to increase their goal achievement without these problems increases companies' competitiveness remarkably. „Irresistible offers" are hard to match by competitors as they require a shift of paradigm: managers and other employees have to admit that they have created and followed policies and rules that create problems to their clients.
If a company is able to increase demand over its capacity, then the company is in the position where it can choose which clients to serve and which not.

Segment the market not the resources. It is common knowledge that for different customers the value of a product is different. Hence, a company should find a way to offer the same product for different prices. The classic examples of such behaviour are Intel (processors) and Nokia (mobile phones), who sell the same product with different levels of functionality and different packaging to clients with different price sensitivity. And they do it in such way, that different segments do not feel discriminated and touched by price changes in other segments. Segmenting the market helps to resolve the dilemma between value or cost based pricing: a company can start pricing its products based on the value to the customer instead of production costs the customers hardly care about.

Service markets moving in opposite directions. Such markets can be found based on products, location, clients or some other criteria. Classical examples of such markets are cars and spear parts or house building and renovating. If the economy is on upturn a lot of new cars are bought and new houses built. If the economy is on downturn cars and houses are repaired and few new ones bought. Same type of movement can be found also for seasonal products e.g. windows and furniture.

Don't pick monopoly. Many companies have a great temptation to fight for the monopoly in some markets and destroy the competition entirely. With monopoly there are some extra risk coming together with to extra profits. In addition to legal restrictions, what decrease companies flexibility, the company gets bonded to the market. You can not choose not to serve the market if a more profitable opportunity arises because clients have no alternative source for the product of service. Also a monopoly has to serve all clients even those who are not profitable. Microsoft or Estonian Telecom can not afford to focus only on business clients and stop serving home users who are much less profitable.
In addition, if a monopoly creates real problems to clients, they get very frustrated as they have nobody else to turn to for an alternative product. Even small number of customers who hate the company to the bottom of their harts can create tremendous problems. As clients have no where to go, a monopoly has to serve all clients even during economy downturn where less profitable clients are a burden.

Control the growth of the company. Companies should increase their capacity (number of employees) exactly as much as is needed to cover current demand. If new employees are hired based on current demand or opportunity and not on hopes of future demand or opportunity there will be much less need for cost fluctuations. Mabin and Balderstone found in their literature research based on 30 cases of companies implementing TOC that 63% average improvement of revenue and profits was achieved without significant increase in operating expenses. This has been a case

also for Estonian TOC implementors although the percentage of revenue and profit increases are different. One small Estonian production company was able to increase its revenue without significant investment into new machinery and with no extra workforce increase from 10 million to over 20 million kroons and change millions of kroons of losses into 3 millions of profits. The other Estonian company was able to increase its revenue with one year from 70 million to 90 million and increase its gross profits 46% without an significant increase in operating expenses. (Tirs 2002).

Conclusion

In spite of different definitions and criticism TOC offers to company managers opportunities to make better tactical and strategic decisions. A prerequisite to it is constraint management in the whole organisation meaning use of TOC principles by all employees in the company.

There are some practical issues of constraint management not touched in this article. In the case of bigger companies constraint management might need IT support. Software for constraint management is on the market, but most of it is meant for bigger companies than Estonian average companies. Hence, companies must either develop software on their own or adjust an existing management software to constraint management needs (some ERP software packages are suitable for that). Both cases require good knowledge of TOC.

Present article is mainly based on theoretical material. To find proof to conclusions made in the article Estonian TOC users should be researched and their performance analysed in order to determine did TOC help to make better tactical and strategic decisions.

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PIIRANGUTE TEOORIA KASUTAMISE VÕIMALUSI TAKTIKALISES JA STRATEEGILISES JUHTIMISES.

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Kokkuvõte

Üheks uuemaks süsteemse juhtimise metodoloogiaks on piirangute teooria (*Theory of Constraints*). Seda teooriat on kritiseeritud ning erinevalt tõlgendatud. Antud artiklis näidatakse selle teooria kasutamise vajadust ja võimalust. Käsitlemist leiavad piirangute teooria näited ning piirangute arvestamine juhtudel kui tootmisvõimsused ei muutu ja muutuvad. Põhjalikumalt käsitletakse piirangute juhtimist pikas perspektiivis ning sellel põhinevat strateegilist juhtimist.

Käesolevas artiklis toodu põhineb peamiselt teoreetilistele arutlustele. Leidmaks artiklis toodud järeldustele kinnitust tuleks uurida Eesti ettevõtteid, kes on piirangute teooriat rakendanud ja analüüsima, kas see metoodika on aidanud ettevõtetel ka pikemas perspektiivis kui üks aasta areneda ning edukaid otsuseid vastu võtta.

ОЦЕНКА И УЧЕТ ДЕБИТОРСКОЙ ЗАДОЛЖЕННОСТИ

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Значение дебиторской задолженности

Учетная система Эстонии придерживается международных принципов учета и отчетности. Имущество эстонских предприятий, подчиняясь общему международному правилу расположения статей в активе баланса, записывается в порядке убывания его ликвидности. Что касается классификации оборотного имущества, то дебиторская задолженность записывается после статей «деньги и банковские счета» и «акции и прочие ценные бумаги».

Основную часть краткосрочной дебиторской задолженности составляют требования к покупателям, поэтому далее будут рассматриваться вопросы, связанные с этой частью дебиторской задолженности. По данным Департамента статистики Эстонии краткосрочная дебиторская задолженность покупателей по состоянию на 31 декабря 2000 года в объеме оборотного имущества предприятий составляла приблизительно 30%. На это влияют многочисленные обстоятельства: характер покупателя (юридические или физические лица, местные или зарубежные), спрос и конкуренция на рынке, политика коммерческого кредита предприятия и др. По значимости дебиторской задолженности покупателей выделяются две отрасли экономики – строительство и оптовая торговля, где удельный вес дебиторской задолженности покупателей в объеме оборотного имущества предприятий этих отраслей составлял в конце 2000 года соответственно 34% и 29%.

На основе указанных данных предприятий можно полагать, что дебиторская задолженность, образовавшаяся при поставке товаров, выполнении работ и оказании услуг с отсрочкой платежа (т.е. с коммерческим кредитом) является ощутимой как для предприятий, так и для экономики государства в целом.

В начале перехода на рыночную экономику в 90-ых годах прошлого столетия эстонскими предприятиями применялась наименее рискованная и наиболее популярная продажа на условиях предоплаты. Такой подход был необходим в сложившейся в тот период ситуации, характеризуемой тотальными неплатежами и низкой платежной дисциплиной в расчетах между предприятиями. В настоящее время почти 90% эстонских предприятий применяют коммерческий кредит. Время, на которое может быть отсрочен платеж, определяется самим предприятием и является одним из условий договора. Такая тенденция развития указывает на то, что коммерческий кредит считается неотъемлемой частью обыденной хозяйственной деятельности предприятия, способствует увеличению объемов продажи и ускорению оборачиваемости товаров. Выгодные для покупателей условия коммерческого кредита являются верным способом поддержания устойчивого спроса. В то же время коммерческий кредит несет в себе изначально риск возникновения неоплаты счетов покупателями. Эстонскими предприятиями предоставляется местным покупателям коммерческий кредит в основном на срок в пределах от 7 до 30 дней. По данным совместного исследования (всеевропейской фирмы *Creditreform* и эстонской фирмы *Eesti Krediidiinfo*) сроки коммерческого кредита, предоставляемые покупателям, являются наименьшими в Европе - в среднем 16 дней. Из исследования

вытекает тревожное обстоятельство: покупатели зачастую медлят с оплатой счетов. Свои счета оплачивают несвоевременно 52% покупателей, опаздывая приэтом в среднем на 8 дней.

Поскольку основной денежный поток коммерческой деятельности связан с поступлениями от покупателей, то проблемы, связанные с дебиторской задолженностью покупателей, становятся наиболее существенными для предприятий. Если проблемы оценки и учета дебиторской задолженности нашли на практике определенное решение, то вопросы, связанные с уменьшением сомнительных счетов, требуют в настоящее время необходимой проработки. Они связаны с разработкой принципов политики коммерческого кредита. В этой области можно выделить следующие направления, способствующие управлению дебиторской задолженностью покупателей:

- определение надежности покупателя по различным информационным источникам,
- определение условий, срока и сумм предоставляемого коммерческого кредита,
- определение путей «сбора» дебиторской задолженности.

Это, в свою очередь, повышает достоверность отражения и соблюдение принципа осмотрительности в оценке дебиторской задолженности в финансовом учете и увеличивает необходимость контроля за сроками оплаты счетов и своевременное проведение претензионной работы.

Классификация дебиторской задолженности

Согласно *Est GAAP* № 6 «Содержание балансовых статей бухгалтерской годовой отчетности» краткосрочная дебиторская задолженность, связанная с реализационной деятельностью, в балансе выделяется по следующим статьям: счета к получению и сомнительные счета (с минусом).

По статье «счета к получению» показывается непогашенная задолженность покупателей за отгруженные товары, сданные работы и оказанные услуги, поскольку в условиях коммерческого кредита возникает временной лаг между отгрузкой их покупателю и оплатой. Как объект учета, дебиторскую задолженность покупателей можно аналитически разделить на следующие составляющие:

- задолженность, погашаемая своевременно и регулярно,
- задолженность, погашаемая нерегулярно и несвоевременно, при этом задержка оплаты может зависеть не от должника-покупателя, а от других обстоятельств на денежном рынке,
- спорная задолженность ввиду отказа покупателями от акцепта счетов из-за неудовлетворительного качества товаров или несоответствия условий поставки. Как правило, такие споры в основном решаются двухсторонними переговорами,
- сомнительная задолженность, возникшая из-за низкой платежеспособности или банкротства, а таже из-за неидентификации покупателей,
- безнадежная и списываемая с баланса задолженность.

Все эти составляющие носят характер отвлечения средств предприятия из денежного оборота, при этом только первую составляющую можно отнести к

нормальной дебиторской задолженности. Наличие остальных видов просроченной задолженности свидетельствует о нарушениях платежно-расчетной дисциплины, а их увеличение в динамике есть признак ухудшения финансового положения предприятия.

При классификации дебиторской задолженности в западной и эстонской практике не имеется особенных расхождений. Существуют общие правила классификации дебиторской задолженности в балансе и приложениях к балансу, которые исходят из IAS 1 и 39. Правила регламентируют количество и качество информации о дебиторской задолженности, которая должна отражаться в финансовой отчетности в интересах ее пользователей.

В учетной политике эстонские предприятия соблюдают следующие общие правила в раскрытии информации о дебиторской задолженности:

- выделение существенных видов дебиторской задолженности в балансе отдельной статьей,
- соблюдение требования конверсии краткосрочной дебиторской задолженности в деньги,
- обеспечение информации о корректировании дебиторской задолженности (расположение оценочной статьи в балансе рядом с соответствующей статьей или в приложении к балансу),
- представление информации о любых непридвиденных убытках, которые связаны с дебиторской задолженностью,
- отражение дебиторской задолженности, право на которую передано или отдано в залог в качестве обеспечения,
- раскрытие концентрации риска с дебиторской задолженностью, связанной с предприятиями одной отрасли или одного региона.

При классификации дебиторской задолженности исходят из правила, что увеличение числа статей в активе баланса излишне загружает его и, таким образом, уменьшается ясность самой отчетной формы.

Признание дебиторской задолженности

Наиболее значительный вид дебиторской задолженности – счета к получению, возникающие при продаже по, так называемому, «открытому счету» без письменного обязательства покупателя оплатить счет. Можно выделить две проблемы, связанные с дебиторской задолженностью по счетам к получению и имеющих особое значение при представлении информации в балансе:

- признание дебиторской задолженности по счетам к получению и
- оценка их с целью определения реальной дебиторской задолженности.

Вопрос о том, что считать дебиторской задолженностью, у бухгалтера не вызывает затруднений: сумма официального документа - счета, которая должна быть оплачена, отражается по дебету счета «счета к получению» в сумме поставки, включая налог с оборота (налог на добавленную стоимость) и кредиту счета «доход от продажи» (или «нетто оборот реализации») в продажных ценах, а сумма налога с оборота одновременно отражается как задолженность перед налоговым департаментом. Таким образом, дебиторская задолженность отражается на бухгалтерском счете по номинальной стоимости счета покупателя.

Сказанное приводит к тому, что под дебиторской задолженностью покупателей понимаются их обязательства перед предприятием по выплате денег за проданные товары, выполненные работы или оказанные услуги. Из этого вытекает вывод о том, что указанная трактовка в целом соответствует принятой в странах, соблюдающих правила IAS, и эстонские предприятия имеют те же возможности форме представления, способах оценки и управления этой задолженностью.

В западных странах дебиторская задолженность широко распространена в результате существования гибкой системы многочисленных скидок. Одна группа скидок - это процентные скидки от базовой продажной цены. В случае продажи с такой скидкой выставляется покупателю счет на чистую сумму (базовая продажная цена минус скидка), и соответственно дебиторской задолженностью признается эта чистая сумма. Такие торговые скидки (во время сезонных распродаж, при продаже постоянному клиенту, за объем продажи и пр.) широко применяются и эстонскими предприятиями. Однако вторая группа скидок, целью которых является побуждение покупателя оплатить счет до окончания оговоренного срока, не нашла особого применения. Поскольку именно эта группа скидок создает проблему признания дебиторской задолженности и отражения ее на бухгалтерских счетах, связанную с налогообложением.

Оценка дебиторской задолженности

Проблема оценки дебиторской задолженности возникает в момент составления баланса и приложений к финансовой отчетности. Одним из требований процесса перевода бухгалтерской отчетности эстонских предприятий на отчетность, составляемую в соответствии с принципами IAS, был переход на определение реализации с кассового принципа на принцип начисления. В связи с этим в учетной практике остро встала проблема, аналогичная той, с которой сталкиваются и западные предприятия: оценка и учет счетов, оплата которых прогнозируется как сомнительная. Следует отметить, что решение этой проблемы в учетной практике эстонских предприятий по сути и полученным результатам отличается от западной.

Существенным фактором балансовой оценки дебиторской задолженности является степень определенности ее погашения. Для определения чистой стоимости реализации данного вида оборотного имущества необходимо оценить величину реальной задолженности, которую ожидается получить в результате ее погашения покупателями. Эта сумма, как правило, отличается от юридически причитающейся величины. Наличие сомнительных счетов представляет собой потерю выручки от продажи и требует соответствующего снижения величины дебиторской задолженности покупателей в балансе и уменьшения прибыли в отчете о прибыли. Расходы от сомнительных счетов в хозяйственной деятельности - вполне обычный вид расходов, поскольку заранее нельзя быть уверенным в том, что счет будет оплачен. Учитывая это обстоятельство, необходимо применять соответствующие методы для оценки неоплачиваемых счетов в будущем.

В соответствии с *Est GAAP* № 6 просроченные счета к получению в учетной практике делят на сомнительные и безнадежные. Сомнительные счета, по сравнению с понятием «безнадежные счета», содержат вероятность возможного

погашения долга покупателем. На основе этого стандарта величина сомнительных счетов определяется по результатам инвентаризации дебиторской задолженности покупателей, проведенной в конце отчетного года. Величина сомнительных счетов определяется по индивидуальному методу – каждый сомнительный счет рассматривается отдельно. Счет является сомнительным, если покупатель не отвечает на напоминающие письма, на покупателя предъявлен судебный иск, покупатель объявлен банкротом или деятельность его закончена. Зачастую оценка счетов по индивидуальному методу затруднена в силу отсутствия своевременной и точной информации о платежеспособности должника. В данном случае оценка дебиторской задолженности зависит от субъективных факторов.

Сумма сомнительных счетов, определенная индивидуальным методом, записывается путем дебетования бухгалтерского счета «расходы по сомнительным счетам» и кредитования бухгалтерского счета «сомнительные счета». В балансе эта сумма отражается как регулирующая контрактивная статья под названием «сомнительные счета». В результате этого, итог актива баланса уменьшается на сумму, считающуюся нереальной задолженностью. Расходы по сомнительным счетам отражаются в отчете о прибыли в составе прочих коммерческих или сбытовых расходов.

Если известно, что сомнительный счет не будет оплачен или для изыскания экономически нецелесообразно применять соответствующие меры, его списывают с баланса путем дебетования бухгалтерского счета «сомнительные счета» и кредитования бухгалтерского счета «счета к получению». В *Est GAAP* № 6 отмечено, что в соответствии с хорошим обычаем ведения учета, происходит списание сомнительного счета в расходы до превращения его в безнадежный.

Несмотря на свою простоту и очевидность, индивидуальный метод ведет к нарушению особенно принципов соответствия доходов и расходов, а также осмотрительности и объективности. Заметим, что причинами, определяющими применение индвидуального метода оценки дебиторской задолженности вместо методов начисления резерва сомнительных счетов, являются следующие обстоятельства:

- несоответствие *Est GAAP* по данному вопросу международному хорошему обычаю ведения учета,
- незначительный размер предприятий обусловливает весьма узкий круг их покупателей и позволяет применять более простой метод оценки сомнительных счетов,
- изменчивость экономической среды и быстрое развитие предприятий обусловливает непригодность данных прошлых отчетных периодов для методов начисления резерва,
- осталость в применении технологических средств в анализе дебиторской задолженности по срокам ее погашения.

Следует отметить что в целях соблюдения основных принципов представления информации в финансовой отчетности (соответствие доходов и расходов, объективности, осмотрительности) корректировка дебиторской задолженности покупателей в подготовке баланса должна осуществятся методами резервирования (на базе данных прошлых лет рассчитывается удельный вес сомни-

тельных счетов в объеме кредитной продажы или объеме дебиторской задолженности, который применяется к величине кредитной продажы или дебиторской задолженности текущего года, либо на основании ранжированной дебиторской задолженности по счетам, сгруппированной в зависимости от срока оплаты). Это обстоятельство вызывает необходимость контроля и анализа движения (возникновения и погашения) дебиторской задолженности по срокам. В связи с этим возникает необходимость дальнейшей разработки вопросов оценки дебиторской задолженности.

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VALUATION AND ACCOUNTING OF THE ACCOUNTS RECEIVABLE

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Summary

Accounting and valuation for the accounts receivable is becoming more important problem, because Estonian companies use more and more commercial credit. Insufficient handling of the accounts receivable has caused a situation, where the enterprises do not analyze the actual fair value of the accounts receivable, but use the more easier method by which important accounting principles are violated. The Estonian GAAP requires method in valuing account receivables, which is not accepted by the internationally accepted accounting principles. Estonian enterprises have to start using methods according to generally accepted accounting principles and the analysis of the data, when valuing the accounts receivable, not to depend on accountants will.

THE MAIN ECONOMICAL ASPECTS OF THE CHOICE IN CORPORATE PERFORMANCE MEASUREMENT MODELS: DEVELOPMENT OF THE GENERAL MODEL

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Abstract

In this paper the author analyses the development of theoretical treatments of evaluation models used in the field of corporate finance, and differences between the theoretical and practical approaches. The purpose is to discover the reasons for the time gap between the theoretical treatment and implementation of these theories in practice. To accomplish this the author has firstly, studied the development of models evaluating the success of enterprises, secondly, the origins of evaluations among different methods of divisional performance measurement, thirdly, macro economical aspects in the selection of evaluation models and finally, the key criteria of different evaluation models found through comparing inputs of different models to express relationships between them according to evaluation model type. According to the topic and linkages within the topic, in the final part of the paper the author has developed Copeland's two-dimensional decision-making tool by adding a third dimension, the estimation of the four levels of macro economical uncertainty by Courtney. The result of this study is a three-dimensional model for selecting evaluation methods. The author has called this decision-making framework: 'the general three dimensional model for selecting an evaluation method'.

Keywords: performance measurement models, flexibility, decision-making tools, uncertainty, valuation, real options

Journal of Economic Literature Classification numbers: D80, D81, H43, G31, G39

1. Introduction

In this article, the author studies developments in the theoretical and practical approaches of evaluation models and differences between these developments used in corporate finance.

The author aims to present important aspects of the time difference between the theoretical treatments and their implementation in practice. For that purpose the author has analyzed firstly, the development of models for evaluating corporate performance; secondly, models for measuring divisional performance; thirdly, macroeconomic aspects of selecting an evaluation model based on a determination of macroeconomic uncertainty; fourthly, the key criteria in models according to model type and finally to show the relationships between models and intersections found by comparing the inputs of each model.

In accordance with the topics researched and their inter-connection, in the last part of the article, the author has further developed the two-dimensional method for selecting models described by Copland and the others. The macroeconomic dimension, defined by Courtney and others, has been added to the model giving us four levels of determination in macroeconomic uncertainty.

Depending on why we use macroeconomic uncertainty and the risk derived from it (whether it is used as additional input for measuring the risk or as additional criteria for selecting a model), the further theoretical development could be termed accordingly as the three-dimensional evaluation method selection model or two-dimensional and five criteria evaluation method selection model. One dimension is always the model itself. This approach is used, because if one knows two dimensions it is possible to determine the third one. The author calls this the three-dimensional evaluation method selection model (framework for decision).

2. The development of corporate performance evaluation models

The basis of present evaluation models like Residual Income (RI) and Economic Value Added (EVA^{TM}) is finding the cost of a company's capital. These theoretical approaches were developed at the beginning of 20th century in the U.S.A by comparing theoretical and practical foundations the first opportunity arose for professional statistics to use standardized accounting data.

First, the indicators of profitability like ROE (return on equity), ROI (return on investment) and EPS (earning per share) were studied and further developed, taking into consideration the cost of capital as one input. This approach was put into practice in the middle of the 20th century as a result of the unification of theoretical and empirical study results. This statement is supported by studies using theoretical approaches as a practical tool in corporate finance. It will lead us to the conclusion that the bases for corporate performance evaluation models were set in 1920s. The most influential researchers-developers were Ralph Epstein, J.E. Sterrett's, Leonard Crum, Laurence H. Sloan, Irving Fisher, Jach Hirscleifer, Myron J. Gordon and David Solomons.

Non-traditional approaches like the model for evaluating real options, ROV (real option value), was developed in 1973 when Fischer Black, Myron Scholes and Robert Merton quantified a formula for calculating "free for arbitration" value. "Free for arbitration " value meant that stocks with the same risk level and productivity profile should be identically valued. This simple idea is the basis for the real option value model. This approach was further developed for evaluating real options in non-financial investments.

Evaluation models that are important from the perspective of development phases

According to Goetsmann and Garstka (1999) the main evaluation models that can be emphasised from the perspective of development phases are:

(a) Sloan's EOIC (earning on invested capital) model and the further complex development by Pierre S. DuPont, based on finding relative numbers;
(b) Gordon's Growth Model, based on discounting cash flows with constant growth and discount rates;
(c) Fisher's NPV (net present value) and his Theory of Interests, which became the basis for further study on models considering the cost of money;
(d) Hirschleifer's IRR (internal rate of return) which equalizes net present value with zero to find the corresponding economic profit rate;

(e) Solomon's RI (residual income) defined as NI (net income) minus capital expenses when capital expenses can be expressed in the formula: cost of capital (r) multiplied by the amount of capital (I) leading us to EVA™ (economic value added). The main difference between EVA™ and Gordon's Growth Model is that EVA™ measures the corporate performance of a fixed period while Gordon's model treats several periods as more dynamic and considers the differences of these periods;
(f) The so called non-traditional approach of evaluation - ROV (real option value). The initiators of the current approach have been Trigeorgis, Copeland, Kulatilaka and Keenan but original the idea belongs to Fischer Black, Myron Scholes and Robert Merton.

Closer attention should be paid primarily to the evaluation of profitability derived from the origins of separate corporate economic units and secondly, to study the latest theoretical approaches in the corporate finance field. The aim of the author is to treat these statements from the following perspectives: (a) real options value and financial flexibility and (b) real options based thinking for making strategically important decisions.

3. The main aspects of divisional performance measurement

Company performance, especially divisional performance is one of the most critical aspects of corporate management. With performance measurement it is possible to determine which factors influence the creation of value for a whole company. It is important to emphasize the first special aspect in "that game" – internal company rules. The main parts of the internal rules system according to Jensen and Meckling (1998) are (a) the performance measurement and evaluation system; (b) the rewards and punishment system; (c) the system for partitioning decisions among individuals in an organization.

The main component of a company's internal rules comprises a system of rights. These rights can be divided as follows:
(1) the right to initiate, defined as the right to make suggestions for managing resources;
(2) the right to notification (inform), giving a person the right to inform colleagues and other personnel on coming activities and trends the company is approaching, also it includes giving advice within the decision-making process, related to initiative proposal;
(3) the right to ratification (confirm), defined as the right to confirm conclusions made and decisions on resource allocation meant to be implemented by people participating in the process;
(4) the right to implement which means to implement confirmed decisions using allocated resources;
(5) the right to monitor, which means to have the right to observe the implementation of confirmed decisions, it also includes the right to measure and evaluate the implementation process and accordingly determine additional rewards or penalties.

The main characteristics of the rewards and penalties system are respect, punishment, attention, position, salary and its changes and bonuses.

The measurement and evaluation systems are derived from adding weighted measures or values to components of the rewards and penalties system and the individual rights of judgment system and measuring the results of activities in terms of performance (successes, objectives, projects and other management objects).

Secondly, to separate different types of corporate units: (1) cost centres; (2) revenue centres; (3) profit centres; (4) investment centres; (5) expense centres (supporting cost units) /Jensen, Meckling 1998 p.5/.

Characteristics of a particular unit should be related to the objectives of activities because otherwise there is no sense in structuring the units. The most important overall objectives according to Jensen and Meckling are:
A) cost centers:
(a) minimise costs on fixed output;
(b) maximise output on fixed costs;
minimise average costs (no fixed output).
B) revenue centers:
(a) maximise total income at fixed price;
(b) maximise total income at fixed amount;
maximise total income (no fixed amount and price).
C) profit centers:
maximise profit at given rights of judgment, list of products(services), amount and price whereby highly variable inputs in that process can be treated separately (like production branches for raw materials with capacious and variably priced products).
D) investment centers:
(a) maximise productivity of assets on fixed capacity of assets;
(b) maximise amount of assets with given productivity;
maximise productivity of total assets (no fixed capacity).
E) expense centers:
(a) fulfil given activities on same quality but more effectively;
(b) fulfil given activities on higher quality but on same costs;
(c) fulfil tasks on fixed amount, dates and costs.

The first step should be to divide people into units according to activity. Secondly, determine the tasks and rights of each unit and allocate resources. Thirdly, determine criteria for evaluating the units' activity (according to their tasks and objectives). Fourthly, measure and evaluate the implementation of tasks and objectives according to confirmed and determined criteria. Fifthly, determine applicable rewards and penalties while keeping in mind the organization's system of rights. The best way for this system to work is by creating an organizational hierarchy in compliance with the rights. Looking at different units as independent enterprises (together with the given objectives and tasks), we can make a general conclusion that according to a company's business model, the primary performance measurement criteria is still to hold to determined objective and quantified evaluation parameters.

4. Four levels of uncertainty and their influence on the selection of an evaluation model

In everyday life, top managers are struggling with questions of how to define uncertainty and especially from the aspect of strategic management. To better

understand and define uncertainty, three men from a consultant company like McKinsey, Courtney, Kirkland and Viguire, have created a four level framework for approaching uncertainty. These levels are:

a. a clear enough future;
b. alternative futures;
c. a range of futures;
d. true ambiguity.

Courtney and others define a clear vision of the future as the situation where managers can work out one possible future scenario after analysis of their situation using standardized approaches such as researches about the market situation – prices and number of competitors, business analyses, or, Michael Porter's five forces framework. According to previous approaches and based on projected future cash flows, NPV is found. The best competitive advantage is guaranteed by using a strategy inclined towards innovation in the field of products and services, innovation in a company's business systems is also effective since it doesn't change the overall industry.

Level two or alternative futures is defined as the situation where managers cannot work out one particular future scenario after analysis of their situation, instead they have to determine different scenarios and possible future outcomes based on several assumptions. This situation is best described by regulated industries or markets as oligopolistic competition. The best strategy could be to take into consideration the mutual steps by all sides concerned. For every different scenario an evaluation model should be created taking into consideration key indicators of the concrete situation. In that case the central method is scenario analyses together with determined probabilities, followed by accounting the classical NPV. The most effective strategic choice at level two is to move toward an organic increase of business capacity or increased capacity through mergers and acquisitions and after obtaining a "critical mass" (optimal activity capacity), become effective in the company's activities.

Level three or a range of futures is defined as the situation where managers are not able to work out several concrete future scenarios after analysis of their situation, but they can determine possible outcomes on the basis of different assumptions. Companies entering geographically and culturally new markets best describe this situation. The third level analysis is similar to the second level analysis, the only additional task is to choose from among a variety of possible future scenarios, four to five of the most probable scenarios and take into consideration the higher than average risk when realizing these scenarios.

Level four, in other words true ambiguity is defined as the situation where managers are not able to work out any future scenarios on a quantitative level after analysis of their situation, they are limited to certainty on the qualitative level instead. The following situation usually occurs when there is political or regulatory ambiguity as might occur in some politically unstable country or when the company is trying to introduce a new technology. In that case there is only the possibility to determine "key aspects" by which the development of the market can be evaluated and then react immediately by adopting the strategy, this determines who ends up as a winner. Key aspects here could be flexibility and making transactions based on available options, this helps to predict maximal amount of loss. If your company turns out to be

winner and the market situation is becoming similar to a situation of oligopolistic competition then it is good to know that you have reached level two and new criteria should be used when making decisions.

5. Choice in corporate performance measurement models - key criteria for decision-making

At this point, the author would like to start explaining how different approaches are expressed through mathematical formulas to determine the importance of model inputs on the final outcome. Further, the author has compared the importance of differences between comparable inputs in several approaches according to the model. Next step is to move to complement the general decision model according to the previous treatment.

Broadly, we can divide evaluation models into five groups: relative profitability (growth) evaluation model; model for evaluating economic profit; decision-tree model; model for measuring discounted cash flows; model for measuring real options value.

The general formula for relative profitability or indicator of profitability (relative number, generally estimated in %) model is:

$$X = \frac{Y}{Z}, \text{ where} \qquad (1)$$

Y – absolute value of the period variable, where the relativity is indicated;
Z – absolute value of the basis of the period according to which the evaluation takes place.

This model is equally sensitive to changes to the basis and the period variable.

The formula for the economic profit model is:

$$EP = Y/(1+r), \text{ where} \qquad (2)$$

Y– absolute value of the period variable, where economic profit is valued;
r – risk-free interest rate for current period.

This model is equally sensitive to changes to the bases and periods and additionally to changes in the risk free interest rates.

The decision-tree model does not have a mathematical formula. The main value of the model comes when measuring probabilities involved in future scenarios and integrating these with other models.

The formula for measuring discounted cash flows is:

$$PV = C_0 + \frac{C_1}{(1+r)} + \frac{C_2}{(1+r)^2} + \ldots\ldots + \frac{C_n + FV}{(1+r)^n} \qquad (3)$$

where

C_0 – first investment;

$$C_0 = \sum C(1+r_n)^n \qquad (3.1)$$

FV – future value of investment (market price of the investments in the future);
C – inflows of the period;
r – risk-free interest rate for current period;
n – number of periods.

This model is relatively more sensitive to interest changes and also to future cash flows.

The formula for measuring real options according to *Black- Scholes'* model for finding the price for a financial option is:

$ROV = Se^{-\delta t} * \{N(d_1)\} - Xe^{-rt} * \{N(d_2)\}$ (4), where according to Leslie, the relative links between the given inputs for the price of financial options and inputs for measuring value of real options are:

$$d_1 = \{\ln(S/X) + (r - \delta + \sigma^2/2)\}/\sigma * \sqrt{t} \text{ and } d_2 = d_1 - \sigma * \sqrt{t}$$

S – stock price: the present value of cash flows expected from the investment opportunity on which the option is purchased;
X – exercise price: the present value of all the fixed costs expected over the lifetime of the investment opportunity;
σ – uncertainty: the unpredictictability of future cash flows related to the asset or more precisely, the standard deviation of the growth rate of the value of future cash inflows associated with it;
t – time until expiry: the period for which the investment opportunity is valid. This will depend on technology (product's life cycle), competitive advantage (intensity of competition), and contracts (patents, leases, licenses);
δ – dividends: the value that drains away over the duration of the option. This could be the cost incurred to preserve the option (by staving off competition or keeping the opportunity alive), or the cash flows lost to competitors that invest in an opportunity, depriving later entrants of cash flows;
r – risk-free interest rate: the yield of a risk less security with the same maturity as the duration of the option.

Looking at the inputs of the ROV model, we can conclude that a rise in the price of stock is increased by uncertainty, its period of usage, risk free interest rate and its option value. This process also works vice versa. The option value is more sensitive in regard to duration and level of uncertainty.

According to treatment of this in literature there is an important difference between traditional and non-traditional approaches in the sense that financial flexibility has value, but how do you set that value. Pindyck (1988) has studied the following topic in his article where he has provided a very detailed treatment of the value of flexibility under the subtitle – "Irreversible Investment, Capacity Choice and the Value of the Firm". Kulatilaka (1993), Smit & Ankum (1993) and Trigeoris (1993)

have studied the same fields in their corresponding works. These key papers and treatments give a concluding picture of the importance of flexibility in decision-making, evaluating and making agreements, and generally in all management activities. The purpose of this article is not to discuss these topics in a detailed way, but just to highlight the key words and main conclusions which support the statement that the main difference between traditional evaluation models and ROV is that the first one does not take into consideration the importance of flexibility.

It is also important to leverage flexibility. Leslie and Michaels (2000) have, as a result of an analysis, presented a survey on how flexibility leveraging affects ROV or in other words how managers can increase the value of flexibility by concluding an option based 'treaty'.

This survey contains six points for increasing real options value and these are:
(1) increase NPV of predicted cash inflows;
(2) decrease NPV of predicted cash outflows;
(3) increase uncertainty of predicted cash flows;
(4) increase duration period of an option;
(5) decrease the loss of an option value at duration period by realizing the option at a more suitable time;
(6) increase the risk free interest rate.

Previous treatments illustrate the principle difference between traditional ways of thinking and ways of thinking based on real options. It also illustrates that for increasing flexibility it is effective to invest in rights/will versus obligations (responsibilities). The main conclusion from the survey by Leslie and Michaels, also supported by the author, is that applying discipline to real options analysis in evaluating the results of an investment will affect corporate strategy in four ways. These four ways are:
(a) emphasizing different opportunities;
(b) enhancing leverage;
(c) maximizing rights;
(d) minimizing obligations.

Special attention should be paid to this non-traditional approach from the perspective of making strategically important decisions for the company. For confirmation of this, there is the hypothesis proven by Luehrman (1998), that a company's strategy is a portfolio of real options. Therefore it is practical to approach strategic decisions via the four dimensions of Leslie and Michael.

6. Macroeconomic aspects of choosing a measurement model: developing a general model

From a macroeconomic perspective, emphasis should be placed on predictions about the economic environment or origins derived from evaluations, especially regarding the question of determining uncertainty and according to that there are certain characteristics for selecting the right type of evaluation model.

To develop the topic further, at first the author divides evaluation models into four main groups by generalizing Copland and Keenan's five-factor structure in two

approaches. The first approach is an indicator combining economic profit and NPV discounted cash flows, in as much as we are dealing with models considering the cost of capital the difference remains in whether the period is counted or not. The second approach replaces the profit growth indicator with profitability indicators in the context of the *DuPont* approach. There are four types of evaluation models:
(1) based on analysis of profitability indicators;
(2) based on discounted cash flows;
(3) based on scenario analysis (decision trees);
(4) based on real options value.

In the second development or dimension, the author uses the same important inputs as Copland and Keenan in the four main groups – size of cash flow, value of risk, aspects proceeding from differences in periods and aspects of flexibility. As a third dimension, the author adds macroeconomic aspects expressed through the four levels from Cortney, Kirkland and Viguire. First, clear enough future (similar to monopolistic market situation); second, alternative futures (similar to oligopolistic market situation); third, a range of futures and finally, true ambiguity. As a result of that reasoning a three-dimensional framework forms, giving directions for selecting a model or models for evaluating corporate performance (investment projects). These methods can be used for evaluating projects in the tactical aspect of strategic management as well as for selecting an evaluation method for measuring corporate performance. This also implies an explanation of why traditional approaches may offer an inadequate evaluation which leads to inadequate decisions.

Table 1. Key factors in the selection of an evaluation method by Copeland and Keenan

Level of uncertainty/Model	Cash flow based	Risk adjusted	Multi-period	Captures flexibility
ROV	Yes	Yes	Yes	Yes
NPV/DCF	Yes	Yes	Yes	No
Decision trees	No	Yes	No	No
Economic profit	Yes	Yes	No	No
Earnings growth	No	No	No	No

Source: Copeland and Keenan (1998) p. 45

According to table 1 it seems that the decision- tree model only takes into consideration risks. In the given context the decision-tree model may seem to consider the same risks as other models exhibited in the table, but that is not the way it is. The decision-tree model gives us an understanding of the risks as a method for evaluating and considering the probability of some scenarios happening. Other models described in the table take into consideration the risks of a particular scenario and the subsequent risk measures are used in determining the discount rate for the company, corporate unit or project. This leads us to the conclusion that the decision-tree model is more like a supporting unit than an independent evaluation model. This makes it practical to use along side other models given in the table and when there is only one scenario, and then to evaluate the probability of some macroeconomic risks and take this into consideration when interpreting the value of a result. The other, better-quantified risks should be considered in determining discount rates when an evaluation model consisting of similar inputs is used.

Taking into account the purpose of the current work and theoretical approaches, which have been described, the author has proposed a five-criterion decision-model for selecting the best evaluation method. The fifth criterion involves taking into consideration the level of macroeconomic uncertainty. The main idea of calculating using a third dimension is that it provides a simple theoretical thinking model: the bigger the uncertainty (including the time factor/period, duration of a project, etc.), the more useful a model for evaluating real options is and vice versa. In order too present the three-dimensional model it is good to use two related matrixes, in other words, use matrixes with *rows* of the same value and *columns* of different value.

Table 2. The level of uncertainty matrix – an aid for the selection of an evaluation model

Level of uncertainty/Model	Clear future Level 1	Alternative futures Level 2	Range of futures Level 3	True ambiguity Level 4
ROV	Yes	Yes	Yes	Yes
NPV/DCF	Yes	Yes	No	No
Decision-tree	Yes	Yes	Yes	Yes
Profitability	No	No	No	No

Table 3. Generalized key factors and decision matrix by Copeland and Keenan

Inputs of model/Model	Cash flow based	Risk adjusted	Multi-period	Captures flexibility
ROV	Yes	Yes	Yes	Yes
NPV/DCF	Yes	Yes	Yes	No
Decision-tree	No	Yes	No	No
Profitability	No	No	No	No

7. Conclusion

In conclusion, the author can say that the objectives set at the beginning of this work were met. The first part of the article provided an answer to the question of "when will the theoretical approach be used in practice?". The answer is ... after empirical study and theory have merged. This illustrates the relevance of this article from the point of view of differences between the non-traditional evaluation method (ROV) and traditional approaches and their convergence with empirical proof. The main value of the present work is to clarify the links between macroeconomic uncertainty and the selection of an evaluation method and emphasize important aspects related to the topic. By emphasize, the author is referring to the practical value of the work for people, who in their everyday work, make decisions about how to manage. The most general conclusion of the article is (expressed in Tables 2 and 3) the so-called suggestive model of conduct for decision- makers. To obtain the best possible evaluation for a company or project, decision-makers must know the objectives (of the company, project, unit etc.), build up internal rules in a system of rights and then use a decision - tree in their decisions (to consider the risks) and choose an additional evaluation model based on existing data (the main criterion is the need for flexibility).

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HIDDEN VALUES: MEASURING AND REPORTING INTANGIBLE ASSETS

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Abstract

Global business has been fundamentally changing over the past several years. The rising role of information, technology and innovation have been huge changes in business. However most of the glory is restricted to technological innovation. The problem is that the technological innovation is not the only and the "real" key underlying factor for economic growth, improvement in the standard of living and quality of life. There has been paid a little attention to preconditions of innovation – organizational structure, corporate strategy, software, R & D, knowledge and skills, altogether regarded as intangibles. These intangibles make innovation possible and therefore, understanding and measuring them accurately are the key issues. This article is to provide insights into them, to review their measurement possibilities, and to encourage disclosing of information on intangibles.

Keywords: Intangible assets, Intellectual Capital, Non-financial Information.

Introduction

During the last two decades most economies have moved progressively towards a knowledge-based, rapidly changing economy where investments in human resources, information technology, R & D and advertising have become essential to strengthen a firm's competitive position and to ensure its future viability. Intangible factors play a predominant role in companies' ability to innovate and in their subsequent competitiveness in a knowledge-based economy. This dematerialization of economy involves greater investment in intangibles. But unfortunately corporate annual reports do not reflect these intangible values to the stakeholders. There have been researches, demonstrating that roughly 40 per cent of the market valuation of the median corporation was missing from its annual reports (Mavrinac, Siesfeld 1998). Despite the growing awareness of the importance of intangible assets, they remain almost universally ignored in accounting and reporting procedures (Lev 2001, p. 17).

There is a growing need for foreign investments to Estonian and other East-European companies to expand their activities and achieve their strategic goals in the long perspective. It is requisite to perform company's actual worth to the potential investors and other stakeholders, and maintain awareness of the company. Long-term investment decisions can only be reliably made when investors understand what companies do to create value. In other words, they need accurate information about corporate strategy, market dynamics, and the nonfinancial value drivers, which are the true indicators of a company's future performance. Therefore, there is a need to report company's intangibles to disclose these invisible values that is not included in balance sheet. To disclose these intangibles, the first need is to find a method to classify and measure them, because external reporting of intangibles starts mostly with internal reporting. Hereby, the objective of this article is to pay attention to measuring and disclosing information on intangibles that will improve the decision making process of managers and stakeholders.

1. The Economics of Intangibles

Assets are claims to future benefits, such as the rents generated by commercial property, interest payments derived from bond, and cash flows from a production facility. An intangible asset is a claim to future benefits that does not have a physical of financial embodiment. A patent, a brand, and unique organizational structure that generate cost savings are intangible assets. Intangible assets surpass physical assets in most business enterprises, both in value and contribution to growth, yet they are routinely expensed in the financial reports and hence remain absent from corporate annual reports (Lev 2001).

The relationship between traditional capital assets and non-financial or intangibles has been demonstrated metaphorically: "Above the water are the capital assets, visible and measurable. Below the water, however, remains unseen something vastly larger, whose importance everyone knows, but whose shape and size are known by none. And the ratio between the two is between five-to-one and sixteen-to-one in most organizations" (Kennedy 1998). Hereby there is a growing need to measure, manage and report these hidden values, which appears to be of great importance.

There have been several ways to categorize intangibles. The taxonomies used most often categorize intangible assets into three categories: Human Capital, Customer Capital and Structural Capital (Partanen 1998). Human capital includes the know-how, capabilities, skills, and expertise of the human members of the organization. Relational (customer) capital includes any of the connections that people outside the organization have with it: their loyalty, the market share, the level of backorders, ect. Structural capital (or organizational capital) includes the systems, networks, policies, culture, R&D, and other "organizational capabilities" developed to meet market requirements as well as intellectual property like patents. There are also other ways to categorize intangibles, but all these distributions possess almost the same consequence. For instance, Klaila and Hall (2000) divide intangibles as follows (Klaila, Hall 2000):

- Human assets – knowledge, skills, creativity and experience.
- Intellectual assets – information, memoranda, illustrations and publications.
- Intellectual property – patents, copyrights, trade secrets and trademarks.
- Structural assets – culture, organization models, processes and procedures, and distribution channels.
- Brand assets – awareness, reputation and goodwill.

The other similar but still different categorization is following (Adams Capital Inc. 2002):

- Marketing related - trademarks, patents, brand names.
- Technology related - proprietary technology, technical expertise.
- Contract related - non-compete agreements, licenses.
- Human capital related - skilled workforce, workforce in place.
- Customer related - customer and referral relationships.
- Computer related - software, development tools.

Value Platform (Herz 2000) and Conference Board (Sullivan 1998) also categorize intangible assets for measurement and reporting purposes. Herz proposes a reporting

model called Value Platform, which is composed of six key value drivers that must be actively managed to optimize shareholder value. The elements of the Value Platform are mostly intangible. Value Platform includes innovation, brands, customers, supply chain efficiency, people and reputation (Herz 2000). The Conference Board measurement headings are: customers' satisfaction, workplace practices, relationships with suppliers, environmental measures and innovation (Sullivan 1998).

Sveiby divides intangibles into three areas – employee competence, internal structure and external structure. Systems, patents, copyrights, models, administrative systems comprise the internal structure. Organizational culture and norms are also part of this structure. External structure includes relationships with customers and suppliers. This will include company image, brand names, and product recognition (Sveiby, cited in Kennedy1998). Refer to Table I for category explanations.

Table 1

Asset categories (Kennedy 1998)

Tangible assets	Intangibles		
	Human competence	Internal structure	External structure
Tangible equipment Land Buildings	Abilities Experience Tacit knowledge Education	Systems Patents R & D Computer systems Administrative structure Organizational structure	Customers Suppliers Image Brand name

There are a large variety of intangibles, which could be divided in groups in many different ways. Despite the different classification of intangibles, the main content is the same. Companies should select their value driving intangibles and follow their own categorization to build up their measurement and reporting system.

2. Methods for Measuring Intangible Assets

It is difficult, to report intangibles externally without measuring and managing them inside organization. There is an important matter: companies build up their own unique measurement system and a company should only measure what is strategically important for growth – the things that will guide the company into the future. Therefore public reporting is largely subject to internal measurement systems of companies. An important question would remain that how much to disclosure. But, this is another comprehensive and complicated area to discuss and will not be treated here.

Sveiby proposes three reasons why companies do not report intangible assets. Firstly, it seems pointless that management is not aware of how they can be used to monitor operations. Secondly, there is the fear that such indicator might give too much away. Lastly, no rigorous theoretical model for this type of report exists (Sweiby, cited in Kennedy1998). Still, there are number of models and measurement systems to

manage company's tangible and especially intangible assets. One of the challenges for companies is to determine the relative merits and assess suitability of each model.

Sullivan (1998) divides intellectual capital measures to qualitative and quantitative. Qualitative measures include value-based (determining the quality) and vector-based (are we moving forward or backward) measures, and quantitative could be financial or non-financial (Sullivan 1998). But all these measures depend on what you measure and what is the purpose of measurement.

Sveiby (2001) divides measurement approaches into four categories (Sveiby 2001):

- **Direct Intellectual Capital methods (DIC)**. Estimate the financial value of intangible assets by identifying its various components. Once these components are identified, they can be directly evaluated. Either individually or as an aggregated coefficient. The models in this group are: Technology Broker, Citiation-Weightened Patents, Inclusive Valuation Methodology, The Value Explorer, Intellectual Assets Valuation, Total Value Creation, Accounting for the Future.
- **Market Capitalization Methods (MCM)**. Calculate the difference between a company's market capitalization and its stockholders' equity as the value of its intangible assets. The models are: Tobin's q, Investor Assigned Market Value, Market-to-Book ratio.
- **Return on Assets Methods (ROA)**. Average pre-tax earnings of a company for a period of time are divided by the average tangible assets of the company. The result is a company ROA that is compared with its industry average. The difference is multiplied by the company's average tangible assets to calculate an average annual earning from the intangibles. Dividing the above average earnings by the company's average cost of capital or and interest rate, one can derive and estimate of the value of intangible assets. The models are: Economic Value Added (EVA), Human Resource Costing & Accounting, Calculated Intangible value, Knowledge Capital Earnings, Value Added Intellectual Coefficient.
- **Scorecard Methods (SC)**. These are strategic models. These help to create more comprehensive picture of an organization's health and they can be applied to any level of an organization. They measure closer to an event and reporting can therefore be vaster and more accurate than pure financial measures. The various components of intangible assets are identified and indicators are generated and reported in scorecard or as graphs. The models are: Human Capital Intelligence, Skandia Navigator (Edvinsson, Malone 1997), Value Chain Scoreboard (Lev 2002), IC-Index, Intangible Asset Monitor (Sveiby 1997), Balanced Scorecard (Kaplan, Norton 1992).

Balanced scorecard has four perspectives: financial, customer, internal business process, and learning and growth perspective. It commits traditional financial measures with non-financial measures. A Modified version used by Skandia Corporation and titled the Skandia Navigator (also called Business Navigator) includes: customer focus, human focus, process focus, renewal and development focus (Kennedy 1998). An Intangible Asset Monitor (IAM) is a working tool for developing and monitoring long-term knowledge management strategies (Klaila, Hall 2000). IAM considers growth, efficiency and stability as the three critical

areas when measuring intangibles (Kennedy 1998). Table II below illustrates the IAM matrix with sample measures.

Table 2

Internal Asset Monitor (Kennedy, 1998)

Competence	Internal Structure	External structure
Indicators of growth/renewal Years in profession Education level Training costs Turnover	Indicators of growth/renewal Investments in systems, ect. Customers contributing to systems/process building	Indicators of growth/renewal Profitability pre customer Organic growth
Indicators of efficiency Leverage effect Value-added per professional	Indicators of efficiency Proportion of support staff Sales per support person Corporate culture poll	Indicator of efficiency Satisfied customers index Win/loss index Sales per customer
Indicators of stability Average age Seniority Professional turnover rate	Indicators of stability Age of organization Support staff turnover rate	Indicators of stability Proportion of big customers Age structure Devoted customers ratio

These sample measures have to be thoroughly considered and worked out differently in every firm. Each firm has to find measures suitable for its dissimilar organizational structure. These models are great support to companies developing well functioning measurement and management systems.

Some of the models are difficult to categorize into classification introduced above, for example option based methods. The opportunities (like an opportunity to make a business investment due to the R&D-project) should be valued using option methods (Partanen 1998). There is also Human Resource accounting, which is difficult to categorize to classification above. Human Resource Accounting itself includes four basic models:

- The *anticipated financial value* of individuals to the company.
- The *financial value of groups* describes the connection between motivation, organization and financial results.
- *Staff replacement costs* describe the financial costs of recruitment, re-education and redeployment of employees.
- *Human resource accounting and balancing* as complete accounts for the human resource area (Commonwealth of Australia 2001).

Using some of these models is a huge support to strategic management, especially intangible asset management and helps largely facilitate companies to report intangibles in their annual report. But it cannot be claimed that these are the strict preconditions for public reporting. There are a great number of different kinds of intangibles; therefore there is not a one comprehensive measurement system, which includes all kind of intangibles. There is not even a need to measure and report all intangibles. Companies have to choose their critical and most important intangibles, which are driving their future value. Hereby there is not a need to measure and

disclosure of all internal company targets, only the most important ones that will help investors assess future performance.

3. External reporting of intangible assets

In 1997, for the first time since such figures had been recorded, U.S. corporate investments in a set of intangibles (brand, training and R & D) surpassed investments in classic tangibles of property, plant, and equipment. The correlation between stock price performance and traditional balance sheet and income statement measures has dramatically declined; yet the correlation between intangibles and stock price performance can be measured with increasing accuracy (Low, Kalafut 2002). These increasing correlation shows how important is information of intangibles to stakeholders. Communicating with investors and other stakeholders about value-creation activities and addressing the importance of non-financial assets do not substitute for traditional reporting, but rather enhances corporate reports by making them more relevant to today's investors. Reporting non-financial assets can help managers to understand how to build value-based information into their communication to the public in a way that is straightforward and easy to understand. Reporting non-financial assets simply recognizes that, since corporate reports are of critical importance in the eyes of the investment community, and since value metrics are increasingly driving the internal activities of corporation, there is a logical and, perhaps, even inevitable movement toward adding non-financial themes to corporate reports (Herz, 2000).

Ernst & Young Center for Business Innovation (1997) have made a survey to ask investors which non-financial information they value the most. They investigated the impact of non-financial factors on investor decision-making and the extent to which they are leading indicators of future financial performance. 60% of survey respondents said that non-financial data drove between 20% - 50% investments decisions. For just under 36% of the respondents non-financial data influenced between 40% and 50% of their investment decisions. Most valuable metrics were strategy execution, management credibility, quality of strategy, innovativeness, ability to attract talented people, market share and management experience (Ernst & Young 1997). It could be seen that most of these are non-financial values.

Companies already report internally a number of measures of intangible assets. Te issue is what kind of reports would be useful for what purposes. The reasons for developing an external reporting capability include: stock price, strategic positioning and effect on the cost of capital. Skandia, one of the first companies to release an intellectual capital supplement to its annual financial report, found that its stock price rose by 40 percent (Sullivan 1998). The stock markets of Estonia and of other East European countries are not so developed; therefore it does not seem so solid argument for our companies. On the other hand, this could be seen broader – isn't there a growing need for foreign investments, or, are investors really the only stakeholder group of the companies? No certainly not.

The increased importance of intangible assets to business competitiveness has driven change in accounting treatment of intangibles. One approach is to improve information about intangibles by making it easier to treat them as assets in financial statements. The International Accounting Standards Committee (IASC) moved in this

direction in 1998 when it approved International Accounting Standard (IAS) 38 – a standard on intangibles, including advertising, training, start-up and R & D activities (Commonwealth of Australia 2001). This standard allows capitalizing these intangible assets and amortizing them considering prescribed conditions.

Another approach is to increase the availability of non-financial information about investment in, and management of, intangibles. This is happening in Europe. For example, some countries require reporting certain information about human resources, and many companies (Skandia, Ramboll and Ericcson) voluntarily disclose non-financial information about training efforts to customer networks and in-process R & D (Commonwealth of Australia 2001).

To encourage firms to experiment with identifying, measuring and reporting intangibles, key criteria need to be satisfied. First, companies must be convinced that real tangible outcomes – that is, improved internal efficiency, lower cost of capital, greater profit margins – can be achieved through better management and improved measures and reporting methodology of intangibles. Second, financial and accounting bodies need to cooperatively design appropriate incentives that allow for the experimental disclosure of intangibles. If intangible assets cannot be defined specifically enough to allow the accounting profession to quantify it, then qualitative disclosure in financial statement can provide useful information on the intangible assets of the organization (Commonwealth of Australia 2001). Precise information in any form (qualitative or quantitative) helps readers to understand and focus on management's key concerns.

Conclusions

Innovation, knowledge and information are nowadays the drivers of company life, much more so than land, capital or labour. Smart firms are searching for ways to incorporate intangibles into their regular performance evaluation and reporting. They need to identify key intangibles and measures to strategically manage these important intangibles and also communicate these value-creating assets to the stakeholders. Hereby there is a growing need to measure, manage and report intangibles, which appear to be of great importance. This area takes greater and greater importance, but real issues have not been achieved yet. It seems that there are still lack of information about measuring and valuing intangibles, because corporate annual repots don not reflect sufficient information about intangibles. If this is not the reason, why don not they measure and report their hidden values externally? Of course there are confidential information, which cannot be subject to public reporting, but it's always possible to draw a line.

There are a large variety of intangibles, which could be divided in groups in many different ways. Despite of different classifying of intangibles, the main content is the same. Companies should select their value driving intangibles and follow their own categorization to build up their measurement and reporting system. The biggest problem of reporting intangibles is building up their measurement system. There are several models and measurement systems to manage tangible and especially intangible assets of the company. The biggest challenge could be finding the right model, the right measures, and of course, building up and managing the whole measurement and reporting system.

Companies must understand that the real tangible outcomes – that is, improved internal efficiency, lower cost of capital and greater profit margins – can be achieved through better management and improved measures and reporting methodology of intangibles. The other important role could be carried by financial and accounting bodies, which need to cooperatively design appropriate incentives for disclosure of intangibles.

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Summary
Over the past years, intangible assets have become an increasingly important area of research among the academic community, statistical agencies and the accounting community. There is growing recognition of the role that innovation, knowledge and information play in economic development. Traditional reporting information has become increasingly irrelevant. There have been researches, which demonstrate that roughly 40 per cent of the market valuation of the median corporation was missing from its annual reports. Despite the growing awareness of the importance of intangible assets, they are regularly ignored in accounting and reporting procedures. In this article the author have tried to assure that reporting intangible assets can help managers to understand how to build value-based information into their communication to the public and to introduce short reviewing existing models to manage and measure intangibles.

The widespread argument not to report intangibles is measurability of intangibles. But there are several models, which could be a huge support to strategic management, especially intangible assets management that helps largely facilitate companies to report intangibles internally and externally. The models could be classified as follows: Direct Intellectual Capital methods (DIC), Market Capitalization Methods (MCM), Return on Assets Methods (ROA), Scorecard Methods (SC). Companies just have to choose their critical and most important intangibles and find the suitable measurement system to adjust it and construct their own measurement and reporting system.

There are many reasons for developing an external reporting capability. For instance stock price, strategic positioning and effect on the cost of capital. Communicating to investors and other stakeholders about value-creation activities and addressing the importance of non-financial assets does not substitute for traditional reporting, but rather enhances corporate reports by making them more relevant to today's investors. To encourage firms to start with identifying, measuring and reporting intangibles, companies must be convinced that real tangible outcomes – that is, improved internal efficiency, lower cost of capital and greater profit margins – can be achieved through better management and improved measures and reporting methodology of intangibles. Also, financial and accounting bodies need to cooperatively design appropriate incentives that allow for the experimental disclosure of intangibles.

MEASUREMENT AND MANAGEMENT OF FINANCIAL PERFORMANCE OF SERVICE COMPANY

Mirjam Kuusk
Tartu Ülikool

Nowadays most of the developed countries experience service economy, which can be characterized by growing importance of services in all areas of economy and formation of new type of services. It is harder and harder to devide companies to service and manufacturing companies, because there is left very few such kind of companies, which competitive advantage comes from original technical solution, lower price *etc*. Many companies try to achieve their competitive advantage by adding services to their technical solution.

Because of the growing number and importance of services, the nature of competition has changed. A company which provide services as their main activity or to add some value to its technical solution can't compete using the same base as traditional manufacturing company. The business success is no longer guaranteed by economies of scale, cost cutting and other methods that increase profit in short-run. The success of service company is guaranteed by establishing long-time relationship with customers, which is based on the client's satisfaction with service quality of the company.

The high satisfaction is that takes to the formation of relationship between client and service provider which is useful for both sides and through that to the formation of lasting income for the company. The satisfaction of clients' is based on the high quality of service (Ojasalu 1999, pp. 13).

The success of service company depends on creating and keeping long-time relationship with clients. The premise of rising such relationship is the client's satisfaction with experienced service and wish to repeat that experience (Pride *et al* 1995, pp. 364).

The client's satisfaction is achieved by offering high quality services. The management of service company has to understand how service quality is formulating to offer high quality services to its customers. The service quality shows how well in customer's mind the provided service has fulfilled/overfulfilled his /her expectation. It means that customer evaluates the quality of service, not the company (Pride *et al* 1995, pp. 365).

The management of service company has to find out, what does customer expect from service and how can the service company fulfil these expectations.

The services quality is evaluated in moments of truth during interactions between the representatives of the company and customers. The contact persons of service company have the important role in service quality formation. The service empolyees must have preparation and motivation to offer the best quality service. To offer high quality service, the contact person of service company must feel the support of entire service company: the structure, style of managment and the systems of service company has to enable to provide the high quality service.

The complicated nature of service quality and service company cause many problems in measuring and managing the financial performance of service company.

Efficiency measures in manufacturing company are based on output measures. Output, the number of units, is divided by input, the sum of the factors required to produce the units. This method is not suitable for service company, because there is no physically measurable output. Economists, therefore, substitute other inputs (often labor costs) over some measure of inflation, but even this is not objective. If labor costs grow quicker than inflation, it does not mean that service company is inefficient. Labor costs and other surrogates for service output do not work, and industrial efficiency measures mislead when applied to service companies (Shaw 1990, pp. 13-14).

Efficiency of service company depends on how well service company serves its customers. Low cost, superior quality and strong service focus ensures high efficiency of service company (Shaw 1990, pp. 14).

To get the objective overview of efficiency of service company, the efficiency has to be followed in two dimensions: a) internal efficiency and b) external efficiency. This efficiency measure that is related to the way the company operates and the productivity of labor and capital, characterizes internal efficiency. External efficiency is the way the customer perceive the operations and the output of the firm. The measure of external efficiency is customer satisfaction (Grönroos 1990, pp. 94-95).

There are complicated interrelationship between internal and external efficiency in service company. Too often decisions concerning improvements in internal efficiency lead to a deterioration of external efficiency.

The manufacturing company facing financial problems or increasing competition can cut the labor costs to increase efficiency so that the quality of outcome is not influenced. Same decisions in service company have quite different results.

If service company tries to rise efficiency by cutting the labor costs (which are the large part of service company's costs), the personnel has less time for a single customer and the customer's problems. The functional quality of service deteriorates. Customers are not satisfied with the service any more. Empoyees in contact with such customers are affected by such feedback, which leads to the deterioration of internal atmosphere. The quality of service continues to deteriorate, because empoyees are less motivated. To keep its customers the firm sometimes turns to traditional marketing, but the customer become even more unsatisfied, because service company can't offer service quality which was promised in external communication. The corporate image deteriorates, which leads to even deeper financial problems, because firm loses it clients. So the decisions made to improve the internal efficiency may have inadvisable external effect (Grönroos 1990, pp. 94-97).

The service company must not consider only the internal efficiency to improve the financial results of company. The complicated interrelationship between internal and external effciency caused by nature of service quality and service company have to be taken into account. Rising internal efficiency (productivity of labor and capital) and introducing new and costsaving technologies and operational systems remains to be

the task of every company, but making such decisions the external effect always has to be taken into account (Grönroos 1990, pp. 99).

Before starting cost-cutting programs the management of service firm has to find out wich costs improve the capabilities of the organization to produce high-quality services and thus increase revenues (for example costs of training personnel, service development) and which costs follow from unnecessary bureacracy, too heavy middle and top management layers, big stuff functions and unnecessarily complicated and time-consuming operational and administrative routines (Grönroos 1990, pp.100).

Because of the different nature of service company, the economies of scale and experience curve are not working similary to manufacturing company.

Economies of scale benefit manufacturing companies in the long run by reducing the average unit cost of a product as the fixed component of product costs is spread over greater output. Economies of scale do not benefit in service companies in the same way, because the cost sturcture of service company is different than the cost structure of manufacturing company. Fixed costs of industrial company constitute only 15-30% of total costs, the remaining 70-85% of costs is attributed to the product and varies with the volume of production. The fixed-cost component of manufacturing company can be spread over increasing volumes, affecting total product costs but not total fixed costs even over a long period. The resulting improvement in unit costs can be either passed to the customer as lower prices that increase further growth or can be kept by the firm trough higher margins. The productivity of manufacturing company is directly connected to volume and organization size (Shaw 1990, pp.15-16).

In service companies fixed costs are the big part of total costs.70-85% of total costs are fixed costs. Very few costs (approximately15-30% of total costs) can be attributed to a specific service. Because of the substantial fixed-cost component encourages the management of service compnay to increase volume to rise productivity. Unlike to manufacturing companies, the potentially lower costs are not reflected neither in lower costs nor improved margins. Prices are not reduced because it is impossible to determine which specific services are affected by the cost-cutting and thereby fuel profitability growth. At the same time margins do not increase or even decline, because fixed costs grow faster than volume. Unit costs can temporarily decline until capacity becomes fully utilized, but starting to grow as additional capacities have to be added to serve the increased demand (Shaw 1990, pp.16).

The experience curve also works differently in service companies than in manufacturing firms. In manufacturing companies with highly standardized products unit costs decline about 15% with doubling of production. Experience curve gives competitive advantage to these firms which can quickly increase volume and market share. As services can't be easily standardized the experience curve does not benefit service company directly by reducing unit costs. The service quality improves then service personnel repeatedly perform both simple and complex tasks. Customer's satisfaction increases and service company can ask higher prices (Shaw 1990, pp.16-17).

The experience curve gives competitive advantage to manufacturing companies through growth and share and to service companies through impovement of service personnel skills (Shaw 1990, pp.17).

The purpose of cost-cutting and effieciency increasing is to increase profit. Profit equals revenues minus costs. To increase profit, the management of service company has to find out which factors influence the revenues and costs of service firm.

The traditional prescription of profit formulation (that can be true for manufacturing companies) is following: production process, including the production resources and administration, including general administration, personnel, research and develpoment, training, planning and budgeting procedures *etc* are thought of mainly cost-generating functions. The direct impact on revenues is not existing. Traditional marketing activities (product design and packaging, personal selling, advertising and sales promotion, distribution and pricing) are viewed as revenue-generating functions. As production and administration are thought to be cost-generaters, the cust-cutting and internal efficiency improving decisions are made here. Traditional marketing has the responsibility of generating revenues and external efficiency (Grönroos 1990, pp.108).

In service company, there are complicated interrelationship between internal and external efficiency, these ideas about profit formulation are not appropriate. Because of the complicated nature of service and service quality, resources and activities that have an impact on future buying and consumption and thereby on firm's revenues can be found in most functions of the service company. Both service production and company adminstration influence consumption behavior of client. Decisions concerning production and administration have direct impact on external efficiency and revenues of the company (Grönroos 1990, pp.109).

Decisions which affect both internal and external efficiency cannot be made without taking into account their impact on both revenues and costs. Distinction between costs, which are revenue-generating, and costs, which predominantly enhance bureaucracy and decline both internal and external efficiency, has to be made. As the establishment of long-run customer realtionship is that drives profit, the external efficiency has to be considered more important than internal efficiency. The customer's satisfaction with quality of services is the pre-requisite of profit formulation (Grönroos 1990, pp.110).

Strategic planning and management begin with analysing the revenue-generating impacts of a given decision, but as the integrated process, cost-impacts should be considered. Cost-saving has the crucial importance in increasing profit, but the impact of these decisions on service quality and revenues of company always has to be considered. If a cost-saving decision can be expected to have a negative impact on quality and revenues that is bigger than the cost reduction, it should not be made (Grönroos 1990, pp. 110).

Not all production and administration resources and processes have impact on revenues. There are interactive activities in service company, while service employees have direct contact with customers and which directly influence service quality and there are also supporting activities (warehousing, information processing), which have

indirect effect on service quality. These activities have an impact on both revenues and costs. There are also functions and processes (for example internal bookkeeping) which have no impact on service quality and are only cost generating. The cost cutting should start here (Grönroos 1990, pp. 110).

Traditional marketing activities in service company are considered to be mostly revenue-generating functions. At the same time these activities also cause costs. It also has to be kept in mind that if organisation produces bad service quality, advertising and selling cannot satisfy customers and make them buy again (Grönroos 1990, pp. 111).

To increase profit, the management has to focus upon the interaction between service employee and customer and thereby external efficiency. This and careful cust monitoring leads to improvement of service quality. Improved quality means greater customer satisfaction, which has two effects. First, internal atmosphere will improve, because personnel notice customer satisfaction. Motivation of service empolyees increases and corporate image improves. Second, the customers' satisfaction has the external effect, as the positive word-of-mouth is created, which leads to the improvement of corporate image. Sales volume will increase. If internal efficiency and external efficiency are controlled simultaneously, larger sales volume can be expected to have a sound financial effect and to improve the firm's competitive position (Grönroos 1990, pp. 112-113).

The management of service company is not satisfied with theoretical knowing that high service quality is the basis of profit formulation. Management needs more precise information about satisfaction of customers and its financial effect. Managers have to be sure that greater loyalty really improves profit. Therefore the customer measurement and management system has to be developed.

The customer measurement and management system has following stages (Johnson *et al* 2000, pp.14-17):

1) strategy and planning (indentifying the purpose);
2) building the quality survey;
3) carrying out the qualitative research;
4) data analysis;
5) decision making.

The customers' satisfaction with service quality is that drives financial performance. In planning stage the priorities for quality improvement has to be set. The management has to find out if these improvements can be accomplish using existing resources of the company. Firm's goal should be optimize rather than maximize quality and satisfaction. The positive effect of quality improvement has to be bigger than expenditures that company has to make to accomplish these improvements. The qualitative objects has to be balanced by other performance measures (Johnson *et al* 2000, pp. 21-31).

Management has to decide which kind of clients to include and what kind of information to gather from them. The management has to find out, there are the strongest links from quality to satisfaction and profitability and which customers drive the business performance. The information about most important customers and their

needs is more important than to make clear, that all the clients of the company think (Johnson *et al* 2000, pp. 33-40).

In planning stage the frequency of qualitative research has to be decided. The frequency varies from company to company and depends on the audience and the specific service. If company has relatively few customers it may not be desirable to survey them too often. And once one survey is carried out, the necessary changes has to be implemented before launching another survey. At the same time management has to pay careful attention to this information which comes from service employees. The service empolyees can give the most exact information about customers and their needs (Johnson *et al* 2000, pp. 42-44).

On the basis of priorities set in planning stage the qualitative research is established. The quality of service shows how well experienced service meets the expectations of the customer. The customers evaluate the service quality by many aspects. Every firm has to make a list of factors, which influence the service quality for their customers.

To make the survey results useful, the customers responses has to be combined into meaningful pattern of causes and effects. The concrete questions about service quality, customer segmentation principles and survey method has to be determined (Johnson *et al* 2000, pp. 70).

After the survey is carried out, the data is processed and analysed to get the necessary information to evaluate company's performance and the ways to improve it (Johnson *et al* 2000, pp. 26-27).

The customer measurement and management system gives the aid to evaluate and improve service quality and financial performane of the company.

The basis of customer's satisfaction is high service quality, which is subjectively evaluated by customer. The service company can influence service quality by service empolyees' preparation and motivation, organization structure, style of management and operating systems.

As service quality drives the profit, all decisions concerning efficiency and cost cutting has to be made taking into account their impact on external efficiency which measure is customers' satisfaction with service quality. Cost-cutting is important task for increasing profit, but the positive effect of cost-cutting decisions must not be smaller than the negative impact on service quality and revenues. To improve financial performance of company the interaction between service employee and customer has to be improved in a first place.

To make objective decisions about companies performance and its improving, the integrated customer measurement and management system has to be developed. This system provides the necessary information about customers' satisfation and its impact on financial performance of company.

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Summary
Nowadays most of the developed countries experience service economy, which can be characterized by growing importance of services in all areas of economy and formation of new type of services. Because of the growing number and importance of services, the nature of competition has changed. A company which provide services as their main activity or to add some value to its technical solution can't compete using the same base as traditional manufacturing company. The business success is no longer guaranteed by economies of scale, cost cutting and other methods that increase profit in short-run. The success of service company is guaranteed by establishing long-time relationship with customers, which is based on the client's satisfaction with service quality of the company. The service quality shows how well in customer's mind the provided service has fulfilled/overfulfilled his /her expectation. The services quality is evaluated in moments of truth during interactions between the representatives of the company and customers.

The complicated nature of service quality and service company cause many problems in measuring and managing the financial performance of service company.

To get the objective overview of efficiency of service company, the efficiency has to be followed in two dimensions: a) internal efficiency and b) external efficiency. This efficiency measure that is related to the way the company operates and the productivity of labor and capital, characterizes internal efficiency. External efficiency is the way the customer perceive the operations and the output of the firm. The measure of external efficiency is customer satisfaction. There are complicated interrelationship between internal and external efficiency in service company. Too often decisions concerning improvements in internal efficiency lead to a deterioration of external efficiency.
Because of the different nature of service company, the economies of scale and experience curve are not working similary to manufacturing company. Economies of scale benefit manufacturing companies in the long run by reducing the average unit cost of a product as the fixed component of product costs is spread over greater output. Economies of scale do not benefit in service companies in the same way, because the cost sturcture of service company is different than the cost structure of manufacturing company. Unit costs can temporarily decline until capacity becomes fully utilized, but starting to grow as additional capacities have to be added to serve the increased demand.

The experience curve also works differently in service companies than in manufacturing firms. The experience curve gives competitive advantage to manufacturing companies through growth and share and to service companies through impovement of service personnel skills.

The purpose of cost-cutting and effieciency increasing is to increase profit. Profit equals revenues minus costs. To increase profit, the management of service company has to find out which factors influence the revenues and costs of service firm. Because of the complicated nature of service and service quality, resources and activities that have an impact on future buying and consumption and thereby on firm's revenues can be found in most functions of the service company.

Decisions which affect both internal and external efficiency cannot be made without taking into account their impact on both revenues and costs. Distinction between costs, which are revenue-generating, and costs, which predominantly enhance bureaucracy and decline both internal and external efficiency, has to be made. As the establishment of long-run customer realtionship is that drives profit, the external efficiency has to be considered more important than internal efficiency.

To make objective decisions about companies performance and its improving, the integrated customer measurement and management system has to be developed. This system provides the necessary information about customers' satisfation and its impact on financial performance of company.

TRANSFORMATION OF ANNUAL PLANNING SYSTEM – CASE STUDY

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1. Introduction

The last decade can be regarded as the period of dynamic development of accounting in Poland. At first the development of financial and tax accounting was more visible and then, in the next years, when the companies adapted themselves to and were able to deal with the new legal regulations, the development of management accounting could be noticed as well.

The most popular instrument of management accounting used by Polish enterprises is operational budgeting. One of the reasons of such broad application of annual budgeting seems to be the fact that the basic instrument used in the previous years of centrally planned economy was an annual plan called 'techno-economic plan'. In result, there existed the simple possibility to apply the resources (both: human resources and information) as well as some procedures to introduce annual budgeting. However, not all enterprises introduced annual budgeting on the basis of techno-economic plans. Some enterprises introduced budgeting to their practice from the very beginning, without any links to existing procedures. Apart from the way of introduction, there was common knowledge about the possibilities offered by annual plans – they were regarded as useful instruments enabling the analysis of economic and financial effects of decisions and actions.

The main aim of this paper was to analyze the impact of the economy transformation on the use of annual planning systems in Polish enterprises. The analysis was based on literature review as well as on a case study. As the case company Telekomunikacja Polska S.A. (TP S.A.) was chosen.

2. Change in the approach to annual planning in Polish enterprises

In centrally planned economy the major part of decisions concerning the allocation of resources of an enterprise was taken by its external superior units. In consequence, the basic role of the management was to supervise realization of plans determined by external superiors. In such conditions strategic decisions as well as – to a large extent – investment decisions, or even some operational decisions, were not comprised in the competences of the management of an enterprise (Wieckowski 1971). The usage of information for internal purposes was limited to current control of the realization of plans. As the unification of plans was needed, enterprises had to apply the structure and the form of records shaped externally and imposed by legal regulations (Szychta 2001b).

In decision making about resources allocation of large state-owned companies the techno-economic plans were used (Sudol 1979). Such plans had to be approved by external authorities. The crucial parts of the annual techno-economic plan were production plan and investment plan. On such basis the next parts of the plan were

developed. Most often the data was estimated incrementally on the basis of historical data with the implementation of some ratios usually imposed by superior units. After the estimation of cost the revenue was calculated. The achievement of proper economic results was included in the methodology of planning owing to the method of price calculation: cost plus profit margin. Possible losses were subsided (Chluska 1999). The lack of motivation mechanism in planning process was to be observed easily. The only way used to motivate for efficiency improvement was through imposing – very often irrational – target ratios or limits (Burzym 1988).

The proper preparation of techno-economic plans was the main duty of planning section (planning unit) of an enterprise. After approval, the plan had a static character and was obligatory for the whole year. The preparation process as well as some corrections were very time-consuming as computer support systems were not used widely.

The approved plan was the subject of variance analysis. The performance analysis was connected with system of bonuses. However, it was regarded as a success of an enterprise when the numbers in the plan were exceeded, especially as production plan was concerned. Some deviations in cost or profit plans were not regarded as priorities in bonus system. Although, some difficulties could appear when unfavorable variances occurred, as the lack of accountability could cause such a situation that it was impossible to point at the person responsible for improper results.

The transition from planned to market economy initiated the independence of enterprises and their management had to take the responsibility for the decisions and for economic results (Szychta 2001b). The investigation of Polish economic practice conducted at the end of the 90. (Sobanska, Wnuk 2000, Szychta 2001a) demonstrated that the techno-economic plans were replaced by operational budgeting. It must be added that operational budgeting was not the newly discovered instrument as it had been presented in Polish literature of the previous years (Jarugowa 1972).

The budgeting process predominant in practice is running mainly inside the company. It can happen as well that the budget is presented to the owners of the company for their approval (Winiarska 1999). The structure of budget is based mainly on responsibility centers. The form of budget is shaped internally, but it can also mirror the requirements of external reporting. The sale budget is the basis and then the next budgets, for instance cost budgets, are prepared. Some companies limit their annual budget to pro forma income statement. In most cases the annual budget comprises revenue budget and cost budget, more often cash budget and pro forma balance sheet are prepared as well (Radek, Schwarz 2000).

The data in budgets is estimated on historical basis. However, in result of changes occurring, more often some numbers have to be corrected or even estimated from a zero-base (Szychta 2001a). The main way to achieve the required profit is the reduction of cost. In Polish enterprises this process is still connected with restructuring aimed at adaptation of an enterprise's resources to the market demand.

The managers of responsibility centers are persons responsible for preparing budgets as well as for their realization (Andruczyk, Waldzinski 2001). These managers have to negotiate budgets with their direct superiors. Planning units (planning offices or

called similarly) play minor part supporting managers and coordinating budgeting procedure. The approved annual budget is valid for the whole year, however in case of significant changes it can be corrected. Budgeting process is realized with support of information technology – software at different levels of sophistication can be used: from spreadsheets to integrated management systems.

Table 1. Comparison of the main characteristics of techno-economic plans and budgeting predominating in Polish enterprises at the end of 90.

	Techno-economic plans	Typical budgets
User	External	Internal
Structure of plans	Arranged externally – functional structure	Arranged internally – responsibility centres
Basic part of plan	Production plan and investment plan	Sale forecast
Data estimation method	Incremental method	Incremental method with numerous changes, sometimes zero-base
Persons (or units) responsible for budget preparation	Planning unit	Managers of various levels
Budget flexibility	Static budget	Static budget with possibility to introduce significant alterations during the realization period
Support in data processing	Very limited	Financial and accounting systems, spreadsheets and more advanced computer systems
Responsibility for realization and possible variances	Often difficult to identify	Managers of responsibility centres
Emphasis on function	Control of enterprise activities by superior authorities	Support in planning and control of lower levels by Executive Board

In table 1 the main characteristics of techno-economic plans and typical budgets predominating in Polish enterprises are compared. It should be underlined that this comparison concerns solutions used most often in the practice of Polish companies (according to research results). There are enterprises in Poland which still prepare annual plans in a form similar to used in previous years as well as such which totally neglect the usage of budgeting. There are also enterprises which use budgeting systems comparable to the leading Western solutions.

3. Analysis of factors influencing the changes in the approach to annual plans

There is a variety of theories which allow one to interpret properly the changes in the systems of accounting (Luder 2001, Abernethy, Brownell 1999, Burns, Scapens 2000, Vamosi 2000). One of such theories is the contingency theory, which connects some

instruments of management accounting with particular circumstances of their usage and enables one to explain the reasons of application of various accounting solutions in practice.

Research on annual budgeting conducted in the developed countries based on the contingency theory discovered that there are two major contingencies of accounting systems: the environment of a company and internal organizational and behavioral factors (see: Hartman, Moers 1999, Reid, Smith 2000). The main external factors influencing the usage of budgeting are: variability of environment, lack of ambiguity in company objectives and certainty as to the existing correlations between variables describing activity of the company (Parker, Ferris, Otley 1989). Some more variables are listed as internal factors. In the contingency literature the set of factors presented as determinant for budgeting efficiency could vary to a certain extent. However, a common group of organizational factors can be selected and it comprises such factors as: company size, its organizational structure, technology and type of assignments realized (see: Hartman, Moers 1999)

Research conducted in Polish enterprises at the end of 90. (Sobanska, Wnuk 2000, Szychta 2001a, Radek, Schwarz 2001) discovered a long list of factors influencing the use of information for internal management purposes. This list is to a certain extent convergent with the results of the research carried out in Western circumstances. Two groups of factors can be also distinguished clearly: a group of external and a group of internal organizational factors.

As to the external factors which have significantly influenced the development of management accounting in Poland (and of annual budgeting as well) the main clusters are as follows:

- changes in legal regulations which imposed on companies particular systems of data recording and reporting,
- rapid and radical changes on markets,
- changes in ownership structure,
- reduction of restrictions in the transmitting of information about the solutions used in Western companies as well as the development of education in management accounting.

The internal factors which influenced mostly the systems of management accounting in Polish companies form the following clusters:

- changes in technology,
- implementation of modern computer systems in data processing,
- development of knowledge on management accounting among managers at all levels.

It should be added that the investigation on changes in the management systems of Polish companies point at the decentralization of management as one of the crucial results of economic transformation (Januszewski 1999, Szychta 2001a). The contingency theory literature considers organizational structure and systems of competences and responsibilities connected with it as significant internal factors. Owing to that fact, it seems that the influence of decentralization should be also verified in Polish conditions.

4. Case study

Choice of Company

The verification of the statements presented in the article was carried out on the basis of the case study. As the case company the largest Polish telecommunication company Telekomunikacja Polska (TP S.A.) was chosen. TP S.A. is a nation-wide telecommunication operator with over 10 million customers and over 90% of the Polish market. The Company capitalization exceeds 6 billion USD. The Company offers a full range of telecommunication services, including telephony, telegraphy, teletext, facsimile transmission, radio and TV transmission, specialized data transmission and nation-wide dial-up and ISDN Internet access. TP S.A. was established in December 1991 when the state-owned post and telecommunication enterprise Poczta Polska, Telegraf i Telefon (PPTiT) was split into TP S.A., a joint stock telecom company, and Poczta Polska, a public utility offering postal services. Both companies started their independent activities. TP S.A. took over from PPTiT a part of assets and of workforce as well as the rights and obligations related to telecommunications. The shares of the newly formed company were taken up by the Ministry of State Treasury and held until 1998.

There were several reasons for the choice of this particular company. From the point of view of the analysis conducted the most important facts were as follows:

- the Company commenced its activities during transformation period, however it took over from PPTiT such heritage as excessive assets, large and inflexible organizational structure as well as management system not adjusted to the new conditions,
- as the Company operates on a fast-developing market, recession was not an important obstacle for its activities,
- telecommunication market in Poland underwent recently the processes of liberalization and demonopolization,
- the Company was privatized,
- from the beginning of its activities TP S.A. can boast of obtaining very good economic results.

Research methods

Research was conducted in the year 2001 (during the first half of the year) and the subject of the analysis was the period from establishing TP S.A. to the end of the year 2000. The information about the Company – its strategy, organization, market etc. was based on generally accessible sources. The Internet resources such as www pages of Company as well as IPO prospectus published in 1998 were examined. The preliminary analysis discovered that the major part of significant organizational changes occurred in the period 1998-2000. Owing to this fact the annual reports of 1997, 1998, 1999 and 2000 were studied. They appeared to be a valuable source of information regarding privatization and organizational changes.

Apart from the analysis of generally accessible reports and publications, in order to obtain more detailed information some face-to-face meetings and discussions with middle level management were carried out. They took place at the beginning of the year 2001 and were of confidential nature. The main subject of investigation were such issues as methodology and organization of budgeting process. Some questions concerned also the comparison of budgeting and annual planning used in the previous

years. Due to the confidential nature of the information obtained, the presentation of results has been limited to the main external and internal organizational factors that caused the replacement of annual plans with operational budgeting.

Changes on telecommunication market in Poland
Until the economic transformation the Polish telecommunication market was totally monopolized by the state. The state-owned enterprise 'Polska Poczta, Telegraf i Telefon' was obliged to provide telecommunication services in Poland. The Minister of Communication was responsible for its activities including tariffs or network development. All significant decisions were not taken in the enterprise but externally, and they were conditioned by some political and social aspects. In result no connections between demand and supply in telecommunication services or between prices and cost of services were to be noticed.

At the beginning of its activity TP S.A. operated on a market which was still monopolized. In 1993 some local phone operators entered the market but none of them was of a national range. In the year 2000 the Ministry of Communication licensed three independent operators to offer domestic long-distance connections. As to international public telephone service in Poland, TP S.A. is still the only provider. This monopoly will expire by the end of the year 2002.

Nowadays one of the significant areas of telecommunication market is cellular telephony. TP S.A. entered this market through its subsidiary PTK-Centertel Sp. z o.o. Cellular telephony has been most rapidly developing business over last few years, however, the market is highly competitive and it should be assumed that the competition will get even stronger. Another important issue is the progress in telecommunications and information technologies. Both existing and future competitors work on implementing new technologies including various types of cellular or satellite communication, wireless access or Internet telephony. In order to keep pace TP S.A. has to develop and implement such new technologies within its business operations.

The development network, new tariff packs, improved quality of service and more customer oriented activities as well as technological development are crucial factors of the future growth and expansion of TP S.A. on highly competitive telecommunication market.

Changes in ownership
Privatization process of TP S.A. started in April 1998 when the shareholder (State Treasury) decided to introduce Company shares to public trading. This decision was possible due to the approval of privatization process by Polish government. The offer was addressed to Polish as well as to foreign investors. In the first stage of privatization (September 1998) 1400 million TP S.A. shares were admitted to public trading. In November 1998 the stock was first quoted at the Warsaw Stock Exchange and simultaneously Global Depositary Receipts (GDR) debuted at the London Stock Exchange. In April 1999 the Telecommunication Act abolished the 51% threshold of TP S.A. shares held by State Treasury. This enabled the commencement of the next stage of privatization process, as for the further development of the Company a strategic inventor was needed. In July 2000 the Ministry of State Treasury and the France-Telecom – Kulczyk Holding consortium signed an agreement of acquisition of

a 35% block of TP S.A. shares. The transaction brought the Company into one of the Europe's largest telecommunications alliances. In September 2001, the consortium increased its participations to 47,5% by buying a 12,5% block of shares from the State Treasury.

Organizational changes
The analysis showed that in the years 1991-1997 the organization of the company did not undergo any significant changes. TP S.A. used to be a multidivisional company. The Company operated through the territory of Poland via regional divisions. The Management Board controlled middle level units – regional directorates, which in turn controlled district units which directly carried out telecommunication and technical services.

The period until 1997 was utilized by the Company for the intensive preparation of network development due to the awareness of approaching market demonopolization as well as for the preparation of privatization processes. Other important goals were the development of strong TP Capital Group, enhancement of marketing function and improvement in staff qualifications, especially of managers at all levels.

A period of more dynamic organizational changes started in 1998. The dynamic pace of changes reflected the new strategy of the Company. In June 1998 the Management Board of TP S.A. approved assumptions for 10-year strategic plan and the principles of the new Company strategy were as follows:
- strengthening customer orientation,
- stronger focus on achieving economic results,
- clear definition of the scope of responsibilities within the organization.

The main organizational changes in TP S.A. resulted from the intensive work on the reorganization of the Company under the 'New TP' project launched in 1998. As it was clearly underlined in the project, one of the main ways of the future profit maximization should be the proper cost management. One of the crucial elements of the New TP project was the implementation of modern computer systems. In the annual report 1999 for the first time the introduction of new computer support systems was announced. One of such systems was the Hipirion Pilar used to support budgeting process.

The actions aimed at the introduction of the New TP project were finished successfully in the year 2000. The new organization structure was formed and its main purpose was to ensure greater operational efficiency and the ability to meet the needs of particular customers groups. Profit centers which include Customer Service Divisions and cost centers – Technical Service Division and Support Division, were separated within this structure. The functional organization system in each region and district resulted from the need for a smoother co-operation between internal units from different divisions controlled by different managers. In consequence, it required the introduction of new instruments of coordination at all levels. The annual budgeting became one of such instruments. Budgets prepared with the support of modern specialized computer software replaced the annual operational plans prepared in the previous years.

5. Conclusions

The transformation of Polish economy forced enterprises to introduce some changes in their approach to annual planning. Operational budgeting, which replaced techno-economic plans, is regarded nowadays as the most popular instrument of management accounting in Poland. The changes in the usage of information for internal purposes in Polish enterprises were introduced in an evolutionary way. The pace of changes was determined by external factors as well as by the organizational changes and the abilities and skills of managers to adapt to and fulfill the requirements of the new economic system.

The investigations showed that the major factor which influenced the changes in TP S.A. were as follows:

- Changes on the telecommunication market – its liberalization and demonopolization resulted in customer orientation, new tariffs system and improvement of service quality. The Company realized that the future possibility of profitable operations in the conditions of strong price competition will be affected by proper cost management.
- Privatization process – it can cause the slow-down of internal changes connected with a period of waiting for the end of ownership alterations, but the end of this process makes it possible to concentrate on the internal organizational changes which reflect the expectations of new company shareholders. And such expectations are connected with the improvement of company efficiency and profitability.
- Decentralization of management system – the introduction of budgeting was a process simultaneous with the introduction of the new organizational structure. An instrument enabling a better coordination was needed and the role of such an instrument in TP S.A. was taken by operational budgeting.

It must be underlined that the factors listed above influenced the changes in annual planning system in TP S.A. during the period 1997-2000. However, the evolutionary development of management accounting in the Company is observed, so there is a hope that in the course of next few years the solutions used by TP S.A. will be comparable to the solutions developed by Western telecommunication companies.

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Summary
Similarly to other post-communistic countries, the adaptation process in Polish companies to new and constantly changing conditions has demanded and is still demanding very deep alterations in their functioning. One of the crucial points of the restructuring process is the change in the application of accounting information for managerial use.

The main aim of this paper is to present the most important factors which have influenced the changes in the approach to the process of annual planning in Polish enterprises. The main similarities and differences between annual budget and techno-economic plan (which used to be prepared in the previous years of planned economy) have been demonstrated. The analysis has been illustrated with the case study of Polish Telecom S.A (TP S.A.). The company analysed operates at a growing but more competitive market of new technologies. After a long period of monopolistic position in the previous years the company has inherited the large and inflexible internal structure. The restructuring process which is conducted in the company is aimed at improving its competitiveness and profitability. As it will be demonstrated, it affects also some significant changes in the approach to the process of annual planning.

INCOME CONCEPTS: SOME COMMENTS

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Abstract
In 1991, Robert Elliott and Peter Jacobson drew attention to the fact, that accounting must move into the information technology era (see Elliot, R. K. and Jacobson, P. D. 1991. p. 54). Viewed now from the perspective of the information century, it is difficult to appreciate how far practice will move from any real concern with usefulness. New types of investment decisions create new types of accounting information. The more perfect the market the more useful market values will be in measuring income based on changes in the value of assets and liabilitiesvalue. Companies are aware that their accounting systems do not provide the useful information investors need to manag. The fact, that financial statements are insufficient for evaluating companies.

The author also draw attention to the dynamics of accounting and emphasizes that the philosophy of any accounting course is to teach the concepts of accounting rather than concentrate on teaching codified rules. Students need an appreciation of the dynamics of accounting. This approach provides students with principles that allow them to understand the codified rules better and remember them longer.

Introduction

The subject for study in this paper is *income concepts*. The application of different income concepts demands different approaches for the measurement of income. In this paper the author compares differences between *economic income* and *accounting income*.

According to the Hicks approach, income is a change in wealth. According to the FASB[1] approach, income refers to the excess of revenues and gains over expenses and losses for a period. But according to the IASC[2] approach, income refers to both revenues and gains. Figure 1 implies that income is a generic term.

[1] The Financial Accounting Standards Board (FASB) was formed in 1973 as a private-sector body for leadership in establishing accounting standards in the USA.

[2] The International Accounting Standards Committee (IASC) came into existence in 1973, in the same year with the FASB.

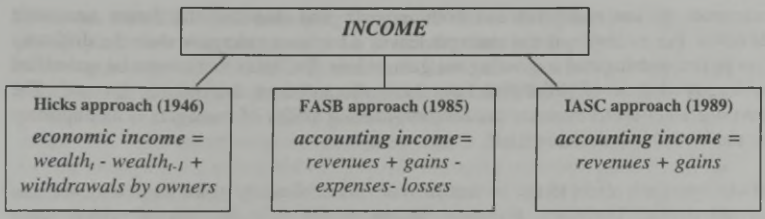

Figure 1: Economic versus accounting income

Hicks approach

Income is a change in wealth adjusted for withdrawals by owners (Hicks, J. R. 1946. p. 172).

Economists have adopted a ***wealth maintenance concept*** of income. They measure *income* by the difference in wealth at two points in time. They subtract beginning wealth from ending wealth and adjust for any withdrawals by owners during the period.

In the following, wealth Equation 1 and Equation 2 illustrate *quantitative income*:

$$\text{Change in wealth} = \text{income} - \text{withdrawals by owners} \qquad (1)$$

Equation 1: Change in wealth depends on measuring income during the period.

$$\text{Change in wealth} = \text{wealth}_t - \text{wealth}_{t-1} \qquad (2)$$

Equation 2: Change in wealth depends on measuring wealth at two points in time t.

Both mathematical sentences have something in common on the left side. Simplifying wealth Equation 1 and Equation 2:

$$\textbf{income} = \textbf{withdrawals by owners} + \textbf{wealth}_t - \textbf{wealth}_{t-1} \qquad (3)$$

Equation 3: Economic income consists of consumption and savings by owners

Economic income consists of consumption or withdrawals by owners, and savings, which constitute changes in an owner's wealth. Under the *wealth maintenance concept*, income is the maximum amount that can be consumed during a period and still leave the owners with the same amount of wealth at the end of the period as at the beginning.

One interpretation of Hicks' classical definition states that enterprise would measure not only *quantitative income* but also *psychic income*, which is defined as a measure of increases in net wealth arising from qualitative factors (Kieso, D. E., and Weygandt, J. J. 1998. p. 147). The author draws attention to the fact that the human

resources in the enterprise can both increase and decrease the future economic benefits. For example, if the manager leaves a business enterprise then the difficulty lies in recognizing and measuring the gain or loss. So, items that cannot be quantified with any degree of reliability have been discarded in determining income. The investor's ability to evaluate the decision-making ability of managers is as important as the investment decision itself.

Hicks approach refers to the current market values of equity at the beginning and end of the period. Therefore, *economic income* would fully incorporate market value changes in the determination of periodic return on an investment:

$$\textbf{Periodic return} = \textbf{dividend} + [(\textbf{market value})_t - (\textbf{market value})_{t-1}] \qquad (4)$$

Equation 4: Financial return on an investment consists of dividend and change in market value

The periodic return shareholders get on an investment comes in two forms. First, shareholders may receive some cash from the business enterprise during the year, called a dividend, which is the *income* component. In addition the second part of the periodic return, called a capital gain or loss, is the unrealized component of market value changes. If shareholders sell the investment at the end of a period, both the dividend and market value changes are realized components of that periodic return.

It should be emphasized that the continual process of earnings is conceptually straightforward, but application of the *wealth maintenance concept* to short periods is difficult. The allocation of those earnings to individual years, quarters, or months requires estimates. The opposite of the **continuous process approach** is the **complete process approach**, which is the accountants' approach for income accounting. The important reason for the disparity between the economic and accounting measures of income relates to the need for periodic reporting. Investors believe that information can be useful in investment decision-making only if it is relevant and reliable. Since many fluctuations in the market values of equity are matters for conjecture, accountants preclude the recognition of market value changes until realized by a transaction. Accountants have concluded that there must be guidelines for revenue and expense recognition.

FASB approach

The FASB has defined *income* by reference to specific events that give rise to recognizable elements of revenue and expense during a reporting period. The events that produce reportable items of revenue and expense comprise a subset of economic events that determine *economic income*. Many changes in the market values of wealth components are deliberately excluded from the measurement of *accounting income* but are included in the measurement of *economic income*. Accountants have retained *the historical cost model*, which generally precludes the recognition of market value changes until realized by a transaction.

Both accountants and economists understand that the earnings process occurs throughout the various stages of production, sales, and final delivery of the product.

However, the difficulty in measuring the precise rate at which this earnings process is taking place has led accountants to conclude that income should normally be recognized only when it is fully realized. Realization generally implies that the enterprise producing the item has completed all of its obligations relating to the product and that collection of the resulting receivable is assured beyond reasonable doubt. For very sound reasons, accountants have developed a reliable system of income recognition that is based on *generally accepted accounting principles* applied consistently from period to period. The interplay between recognition and realization generally means that values on the balance sheet are recognized only when realized through an income statement transaction (Epstein, B.J. and Mirza, A.A. 2000. p. 65).

The FASB definition of *comprehensive income* for business enterprises is discussed in the Statement of Financial Accounting Concept No. 6 (SFAC 6), *Elements of Financial Statements*.

> *Comprehensive income is the change in equity of a business enterprise during a period from transactions and other events and circumstances from non-owner sources. It includes all changes in equity during a period except those resulting from investments by owners and distributions to owners* (SFAC 6 paragraph 70).

> *Comprehensive income results from (a) exchange transaction and other transfers between the enterprise and other entities that are not its owners, (b) the enterprise's productive efforts, and (c) price changes, casualties, and other effects of interactions between the enterprise and the economic, legal, social, political, and physical environment of which it is part.* (SFAC 6 paragraph 74).

The author emphasizes the fact that the *FASB concept of income* refers to the change in owners' equity during the period excluding owners' equity changes through investments of assets by owners and distributions of assets to owners. The changes in comprehensive income result from revenues and gains, expenses and losses, which are classified in the income statement according to business activities:

- *operating income* focuses on the two recurring sources of income. Revenues and expenses result from the primary operating activities of a business enterprise. The secondary operating activity is recurring and incidental or peripheral to the primary operating activity. Gains and losses result from the secondary operating activities. Revenues and expenses are *gross concepts*, whereas gains and losses are *net concepts*. Operating income is realized income. The author points out that many financial statement users care about the operating profitability of a business enterprise. They evaluate its past operating profitability and project its future profitability. Operating income is the best indicator of how successful a business enterprise is.
- *Non-operating income* should not affect ongoing assessments of profitability. Gains and losses result from non-recurring activities. This income component derived from activities that are not expected to be ongoing. The purpose of presenting these items separately is to bring them to the attention of the users of financial statements. These other separate components are discontinued operations, extraordinary items and changes in accounting principles. Income statements report gains and losses of net instead of gross amounts because owners do not need information on the components of either peripheral or nonrecurring income items.

- *price level changes* are unrealized income.

Currently, Hicks' income is probably the understanding of FASB *comprehensive income* from the viewpoint of preferred and common shareholders. Appropriate measurement of income is partially dependent on the vantage-point of the party doing the measuring. From the perspective of outside investors taken as a whole, income might be defined as earnings before any payments to those investors, including bondholders and preferred shareholders, as well as common shareholders. On the other hand, from the viewpoint of the common shareholders, income might better be defined as earnings after payments to other investors, including creditors and preferred shareholders. Companies have issued various capital share classes that differ in their priority ranking in bankruptcy proceedings. Also, accounting standard-setting bodies have issued pronouncements that create new equity accounts for shareholders. An effective analysis of the profitability and risk of a company requires an understanding of the accounting for shareholders' equity.

IASC approach

According to the IASC's "Framework" a business enterprise's *income* is defined as follows:

> *Income is increases in economic benefits during the accounting period in the form of inflows or enhancements of assets or decreases of liabilities that result in increases in equity, other than those relating to contributions from equity participants* (IASC's Framework paragraph 70 (a)).

The IASC's "Framework" owes much of its development and direction to the prior work of the FASB. The author emphasizes the fact that the *IASC concept of income* is, in other words, increases in equity, which are the result of increases in assets. The IASC clarifies that this definition of income encompasses both revenue and gains. The IASC approach has an Anglo-Saxon influence. In the USA, it is usual to use the term *income* for a net amount after the deduction of expenses[3]. In Britain this restriction is not so observed. In this sense, the term *income* is more general and can be applied in every case to a person or a business enterprise. The IASC's "Framework" states that *profit* is used as a measure of a business enterprise's economic performance. The elements directly related to the measurement of profit are income and expenses.

According to *economic substance over form*, income reporting should be the same regardless of *legal form*. Revenues-gains and expenses-losses of a *corporation* are separated from the revenues-gains and expenses-losses of the shareholders. In both the *sole proprietor* and *partnership* form of business enterprise the revenues-gains and expenses-losses identification process is more difficult. Items such as salaries paid to owners or partners may by thought of as distributions of profit rather than expenses. So, the income of owners depends on the legal form of the entity. The IASC approach does not focus only on the income of owners but also focuses on the income of business enterprises.

[3] It should be emphasized that in the USA literature terms *income* and *profit* are used synonymously. Surveys of shareholders show that the average investor understands the term *earnings* or *profit* more clearly than *income* (see Dyckman, T.R., Dukes, R.E., Davis, C.J., Welsch, G.A. 1992. p. 134).

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CONTINGENCY BASED APPROACH IN MANAGEMENT ACCOUNTING RESEARCH*

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The contingency based approach assumes that management accounting systems are adopted to assist managers achieve some desired company outcomes or goals. At the same time the appropriate management accounting system design is influenced by the operating context. If the management accounting system is found to be appropriate then it is likely to provide enhanced information for individuals who take improved decisions and better achieve organizational goals. In the words of Otley (1980, p194): "The contingent approach to management accounting is based on the premise that there is no universally appropriate accounting system which applies equally to all organisations in all circumstances. Rather it is suggested that particular features of an appropriate accounting system will depend upon the specific circumstances in which an organisation finds itself". The effectiveness of the design of the accounting systems depends on ability to be adaptive to changes in external circumstances and other internal responses. Contingency theory helps to identify appropriate fit between specific aspects of an accounting system and certain circumstances.

The aim of the paper is to develop a framework identifying ability of management accounting systems to meet the companies' needs in rapidly changing circumstances using contingency approach. First the paper provides certain presumptions in order to understand the general concept of contingency theory. Then the overview of previous research findings will be given. Afterwards the framework for management accounting research will be designed and its main limitations described.

Presumptions

Effective problem solving depends first of all on the nature of the organisation's operating situation and its internal characteristics. Organisational design includes organisational structure and the selection of appropriate matching information systems. The design of an appropriate management accounting system is dependent upon the choices made in the mentioned areas. Additionally it is also related to organisational behaviour and culture.

Contingency theory considers that the organisations are operating as **open systems**, which are concerned with goals and responding to external and internal pressures. Therefore survival and success of the organisation is based on adaptation to both external and internal forces. In reality organisations attempt to achieve control and operate as closed systems, which considers that organisations are separated from environment and the main impulse for them is goal achievement. But actually they never achieve desired control and never operate as totally closed system. Hence organisations have to cope with the complexity of factors affecting their choices and performance.

* *Author wants to thank prof. Robert Chenhall from Monash University for his assistance and helpful comments.*

Additionally the form of fit must be specified. The ability of organisations to fit with changes in circumstances can be classified into two categories, Cartesian and Configuration approach (see e.g. Miller and Friesen 1984, Donaldson 1996). The former **Cartesian approach** allows organisations to adapt their structures to changing contexts in a piecemeal way in order to sustain or regain fit, thereby producing incremental change over time.

The Configuration approach assumes that organisations consist of tightly inter-dependent and mutually supportive parts, which must be matched appropriately to achieve high organisational performance. Based on the assumptions that the cost of incremental adjustments of individual elements is higher than that of being out of step with context. Configuration theorists argue that adaptation follows a revolutionary pattern rather than an evolutionary (Miller 1982, Meyer *et al.* 1993) and change is occasional and sharply discontinuous. Thus, in order to maintain high performance organisations will take a quantum jump and substitute one equilibrium for another. It is important to stress that results based on one approach hardly can be related to those of the other.

Previous research

Empirical studies of contingency theory in management accounting research have been conducted at different levels (industry, firm, units of a firm) including different contextual factors. Current paper has been concentrated to the studies at the company or major business unit level.

The influencing contingencies can be divided into two general groups:

- ✓ external factors and
- ✓ internal factors.

The major **external factors** that have been examined at the company level in management accounting and control (including cost accounting area) research are external environment (Khandwalla 1977, Merchant 1990, Chapmann 1997, Hartmann 2000), and national culture (Hofstede 1984, Harrison 1992, O'Conner 1995). The most widely stressed research aspects are environmental *uncertainty and hostility*. The hardly predictable environmental elements have own impact on organisational structure, performance evaluation, budgeting, and budgetary control, and are associated with more open and externally focused management accounting systems. Some evidence suggests that high environmental uncertainty is associated with important role of budgets in planning and evaluation requiring explanation of variances, flexible control, and substantial interactions between accountants and other managers (Merchant 1990).

Environmental hostility from intense competition stresses the importance of formal control and sophisticated accounting (Khandwalla 1972, Otley 1978, Imoisili 1985). In general the context of the organisation presents not only constraints but also opportunities that influence the organisational adaptation to external responses.

The most common **internal factors** that have been examined in relation to management accounting are *organisational size* (Khandwalla 1972, Bruns and Waterhouse 1975, Merchant 1981), *technology* (Khandwalla 1977, Merchant 1984,

Dunk 1992), and companies' *strategy* (Miles and Snow 1978, Gupta and Govindarajan 1984, Simons 1987, Chenhall and Morris 1995).

As organisations become larger the need for managers to handle greater quantities of information increases to a point where they have to institute controls such as rules, documentation, specialisation of roles and functions, extended hierarchies and greater decentralisation down hierarchical structures (Child and Mansfield 1972). Khandwalla (1972) found that large firms were more diversified in product lines, were more divisionalized, employed mass production techniques and were using more sophisticated controls. According to Merchant's (1981) study large companies are more decentralised and use more sophisticated budgets in participative way.

Technological contingent factors include the nature of production process, its degree of routine, how well means-end relationships are understood and the amount of task variety (Emmanuel *et al.* 1995). More standardised and automated processes technologies are served by more traditional formal management control systems with highly developed process controls (Khandwalla 1972), high budget use (Merchant 1984) and high budgetary controls (Dunk 1992). Not tight use of budgets is found less in more predictable and automated process and will be positively related to less automated, less predictable job/batch type technologies.

The studies using contingency approach have been defined and measured strategy in many ways. Evidence from research suggests that strategies characterised by a conservative orientation, defenders, harvest and cost leadership are best served by centralised control systems, specialised and formalised work and simple co-ordination mechanisms (Miles and Snow 1978, Porter 1980, Miller and Friesen 1982). Strategies characterised by and entrepreneurial orientation, prospectors, build, and product differentiation are linked to lack of standardised procedures, decentralised evaluation, flexible structure and processes.

Among researchers it has been argued that contingent factors including disparate definitions of variables, absence of sufficient data, under specified models and methodological weaknesses have led to a fragmentary and contradictory picture (Dent 1990, Langfield-Smith 1997). In order to produce clear picture of contingent variables and research results there has to be followed the recommendation of Drazin and Van de Ven (1985, p 536): "Contingency studies should be designed to permit comparative evaluation of several forms of fit. The resulting complementary information can lead to more comprehensive descriptions of context-structure-performance relationships than a single approach to fit alone".

Contingency based framework

Theoretical framework based on Contingency theory has been depicted on the figure 1. Described factors have influence on the companies' management accounting design and performance measurement. The contingencies are divided into two general groups: external and internal factors. External factors indicate the features of business environment such as predictability, hostility and level of competition faced on the market.

Studies interested in the management accounting systems of the companies operating in transition economies should consider additionally financial accounting context

where major changes have been taking place in whole accounting area at state level. Since the conceptual changes in financial accounting characteristic of the Eastern and Central European transition countries served as a precondition for the design, introduction and improvement of cost and management accounting, and the development of companies' management accounting systems. Market economy countries have not experienced such a conceptual change in financial accounting in such a short time during the last decades (Haldma and Lääts 2002). Virtanen et al. (1996) and Scherrer (1996) have been also argued that the evolution of financial accounting has influenced the development of cost accounting and management accounting.

Environment factors have impact not only to the internal characteristics of the organization, but also to the management accounting practice. For example tight competition has influence on the choice of strategy, organizational structure and also the use of appropriate cost management and control. Internal contingencies are determined as organisations' size, technology, and strategy.

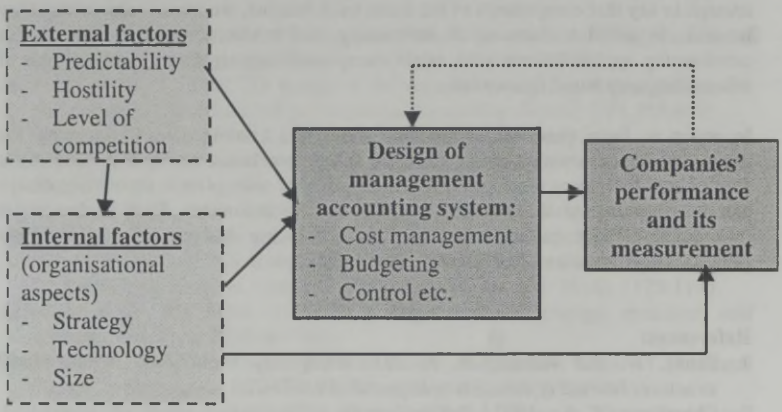

Figure 1. Contingency-based framework

The companies' performance and its measurement are influenced by two components - the internal factors and the design of management accounting system. Additionally, there should be considered the feedback from companies' performance and its measurement to the management accounting practice.

There can be applied variety of performance measures, which have own advantages and disadvantages. It can be argued that the use of financial performance measures (such as profitability, ROI etc) would be easier to interpret. But if the study would cover various sectors with different business processes and financial impact, then the use of financial measures would be not appropriate. One possible solution is to define the outcome as managers' satisfaction with their performance measurement and evaluation. Managers' own assessment about their performance management and

levels of satisfaction makes companies comparable over different business sectors. In reality both well quantifiable (e.g. profitability) and less quantifiable aspects (e.g. product image, customers perception) affect companies performance and goal achievement.

The list of contingencies and relations in this theoretical framework should not be considered as exhaustive. Contingency-based studies assume the existing link between nature and use of management accounting system and enhanced performance. But other behavioral and organizational aspects also may influence the better goal achievement as outcome (e.g. job satisfaction, work place environment, formal and informal control, participation in budgeting process). The researchers have identified wide range of potential factors, which were discussed in previous section. Still there has been remained high degree of ambiguity in determination of factors influencing the management accounting design of the particular company.

Finally, there has to be considered that this framework has certain limitations. Constructed theoretical framework describes the factors and their influence on management accounting systems' design and companies performance. But it is not enough to say that components of the framework interact, we need to know how they interact. In addition, because of intervening and moderate variables this simple contingency approach framework might cause modelling errors. as main weakens of this contingency based framework.

In order to have more clearer picture about real contingencies influencing the management accounting change there are more case based research needed. Case studies enable to learn more about specific aspects of management accounting design and its responses to the changes in contextual circumstances. Case studies could provide new evidence about management accounting design analysing different processes and the role of individual decision- makers .

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Summary
The contingency based approach assumes that management accounting systems are adopted to assist managers achieve some desired company outcomes or goals. At the same time the appropriate management accounting system design is influenced by the operating context. The aim of the paper is to develop a framework identifying ability of management accounting systems to meet the companies' needs in rapidly changing circumstances using contingency approach. Contingency-based studies assume the existing link between nature and use of management accounting system and enhanced performance. Previous studies have identified many factors and their impact to accounting information systems design. These factors can be classified into two categories – companies' external and internal factors. The external factors include environmental characteristics such as degree of predictability, degree of competition faced in the market place and degree of exhibited hostility. Internal factors include several organisational aspects such as size, technology and strategy. Unfortunately little substantial evidence about factors and their influence to the management accounting systems design has been provided. However, the contingency framework provides valuable guidance in conceptualising major issues in this area and helps to structure the impact of various factors upon the management accounting systems design and use.

COST ACCOUNTING IN ESTONIAN MANUFACTURING COMPANIES – A EUROPEAN VIEW

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Economic integration, the internationalisation of companies, increasing harmonisation of financial accounting practices and advances in information technology have created an interest in the which extent there is common ground in cost and management accounting practices across Europe. Differences in culture, language, traditions, management practices, the role of the public sector in the economy and the size of firms in each country lead to the potential differences in cost and management accounting between European countries (see Pistoni and Zoni, 2000). In addition there has been growing interest in examining how costing practices are changing because of changes in the business environment of many organisations. Brierly *et al.* (2001) argue that although there has been growth in research examining management accounting practices during the last decade, however there is a very little evidence available of management accounting practices between different European countries.

Cost accounting systems are supplying basic information for different management accounting areas. Cost accounting is linked with production decisions, pricing decisions and control activities. Information produced by cost accounting system has to assist managers to accomplish companies' objectives and design of cost accounting system has to be constant with companies' needs. Cost accounting and its components enable to calculate and analyse in detail the costs and their influence to the companies' profit generation. Accurately measured product cost information is particularly vital for companies' decisions in intensively growing competition.

The paper summarises the research results of corporate cost structure and some aspects of product costing practice in Estonian and European manufacturing companies. Due to the differences in research methodology we can not compare directly the research results between countries. The paper is more descriptive dealing with researches undertaken in costing practice.

The research group at Tartu University Accounting Department gathered the empirical results among Estonian manufacturing companies through the survey. The questionnaire was carried out among large and medium size companies in 1999. The mailing resulted in 62 usable responses or a 34.3% response rate. The categories of information that have been included into the survey were covered following aspects of cost and management accounting systems: cost measurement and appraisal in financial accounting area, cost element accounting, cost centres accounting, costing methods, pricing principles, budgeting, and internal performance measurement systems. Current paper has been concentrated mainly on the cost elements and costing practice. The review about corporate cost structure and costing practice in European companies is based on the research by Brierly *et al.* (2001), who summarised the results of several surveys in European countries which where conducted in the years 1989-2001.

The cost structure of a company is an important factor affecting the choice of costing method (Lukka and Granlund, 1996). A number of studies have provided information about cost elements accounting and cost structures. In general researchers have studied the cost structures of manufacturing companies by dividing costs between:

- ✓ direct materials,
- ✓ direct labour and
- ✓ manufacturing overhead.

Details about cost proportions in European companies are given in table 1.

Operating income is a key measure to evaluate the performance of entire company and its segments. The product costing method used can significantly affect a manufacturing company's reported income. The researchers have studied mainly the use of traditional methods full (absorbtion) costing and variable costing. The more recently appeared concept throughput costing represents an alternative to these two methods. Yet, the throughput costing is a too new concept to have surveys of its use.

Full costing for inventory valuation is required for financial and tax reporting in most parts of the world. Under full costing all manufacturing, variable and fixed costs are treated as product costs, while non-manufacturing costs are treated as period costs. Variable costing is used for internal management only and it is not acceptable for external reporting. Many companies have found it worthwhile to also prepare variable cost information. Today's accounting information systems enable to prepare income statements under both full and variable costing, which can be defined as best solutions for the companies.

Evidence from Estonian companies

Our survey indicated that 91% of the companies distinguished cost elements and 73% calculated product unit cost. The majority (80%) of the Estonian medium-sized and large companies is dividing costs into manufacturing and non-manufacturing costs, 58% into variable and fixed costs and 75% of the companies into direct and indirect costs. When considering manufacturing cost structure in the companies than by direct materials there is dominating the range of 31-75%, by direct labour and manufacturing overhead the range of 6-20% (see table 2). We found that the cost structure of our sample was on average material costs (54%), direct labour (20%) and manufacturing overhead (19%). Surprisingly we noted that there were companies that did not distinguish direct labour or direct materials or overhead among production costs. Lack of this cost classification can be explained either by the insignificance of particular cost element or by inadequate cost accounting system.

Table 1

Cost proportions in European manufacturing companies

Country where study has been conducted	Researchers	Research method	Type of industry or size of studied companies	Majority of costs (more than 45% of total manufacturing costs)	Relatively small proportion of costs (less than 25% of total manufacturing costs)
UK	Innes and Mitchell (1989, 1990)	Case study -	Electronics	Direct material	Direct labour
	Bromwich and Inoua (1994)	Interview	Electronics		
	Drury and Tayles (1994)	Questionnaire	Manufacturing	Direct material	Direct labour
Ireland	Clarke (1992)	Questionnaire	Large manufacturing companies	Direct material	Direct labour Non-production overhead
Belgium	Kerremans *et al.*(1991)	Questionnaire	Industrial companies	Material costs	Direct labour
Sweden	Ask ja Ax (1992)	Questionnaire	Engineering	Direct material	Direct labour
Denmark	Sørensen and Israelsen (1994)	Questionnaire	Medium and large manufacturing firms	Material costs	Direct wages Manufacturing overhead
Finland	Lukka and Granlund (1996)	Questionnaire	Manufacturing	Direct material	Direct labour Manufacturing overhead
Estonia	Haldma *et al.* (1998)	Questionnaire	Medium and large manufacturing companies	Direct material	Direct labour Manufacturing overhead

The enforcement of Estonian Accounting in 1995 has played an essential role in changing the previous state of mind in the field of accounting, including also some initial positions for cost accounting. The implementation of Income Statement cost by function format has changed and will continuously change the widely spread understanding about the substance and formation of product unit cost. The Estonian Accounting Law specifies that the selling expenses; administrative expenses; research and development expenses are period expenses (Estonian Accounting Law, 1994). These expenses are not included in the values of inventories and are therefore not part of cost of goods sold in Income Statement second format and neither are they included in product unit cost. This is a conceptual difference in comparison with the full costing methods characteristic of and solely used by a centrally planned economy. Although the law stipulates no systematic requirements for companies' cost accounting systems, the implementation of the 'cost by function' income statement format made it necessary to pay more attention to objective cost allocation methods in order to receive more objective information for management decisions.

Our survey indicated that manufacturing overheads were usually allocated on volume-related bases. The main allocation bases were direct labour costs (42% of respondents) and sales volume (38%). Direct labour hours, direct materials and machine-hours were used on a lesser extend. The absence of clear vision about costs, their elements and formation can rise many problems for the companies' managers. Unfortunately in many cases there is almost missing clear vision about connection between costs and technological process, which can negatively affect all product costing area and especially the choice of cost allocation bases.

Table 2

Cost structure in Estonian manufacturing companies

Percent from total manufacturing costs / Cost element	**< 20%**	**21–30%**	**31–50%**	**51–75%**	**> 75%**
Direct material cost	2	5	14	25	10
Percent from total manucacturing costs	**< 5%**	**6–20%**	**21–30%**	**31–40%**	**> 41%**
Direct labour cost	6	38	8	4	1
Manufacturing overhead	7	31	9	5	2

Concerning the principles of product costing, our survey indicated that 54.8% of the companies follow the principles of full costing, 38.7% those of variable costing and 6.5% both of them. In most companies direct costs are not connected with technological maps of the manufacturing process, which implies an arbitrary choice of cost allocation rates. Such a limited approach could not yield a comprehensive picture of the cost formation process in manufacturing area.

Consequently 74% of the respondents of the survey had made changes in different cost aspects concerning their accounting systems in the years 1996-1999. Half of the respondents had planned to make such changes in their cost accounting system that would yield more detailed and segmented cost information. Among the main areas needing improvement, the following were pointed out: the companies' cost allocation methods, the product costing methods, the implementation of variable costing with the contribution margin approach, and the introduction of the activity-based costing system.

Evidence from European companies

In **UK** Innes and Mitchell (1989, 1990) found in ten electronics firms that direct material costs ranged from 50% to 90% of total manufacturing costs. Hence, their management accounting system concentrated on recording direct material costs correctly. They observed that because direct labour costs were insignificant they were included in overhead costs. Other UK studies have observed that on average direct materials make up the majority of product costs followed by overhead, and that direct labour constitutes a relatively small proportion of costs, such as:

- ✓ Murphy ja Braund, 1990;
- ✓ Kellett ja Sweeting, 1991;
- ✓ Drury *et al.*, 1993;
- ✓ Drury ja Tayles, 2000;
- ✓ Bromowitch ja Inoua, 1994.

Naturally we have to bear in mind that these are only averages, and there is some variability in each cost element. The survey by Drury *et al.* (1993) among 303 management accountants in manufacturing companies revealed that overheads constituted less than 12% of total manufacturing costs in 13% of the responding companies and greater than 37% of total manufacturing costs in 19% of companies. They found that 20% of companies apportioned fixed manufacturing overheads between cost of goods sold and stocks for all products and not for individual products. Therefor they argued that management accounting information tended to be prepared on a similar basis to financial accounting information. They also observed that most companies used different types of cost information in decision making. For management decisions 58% of companies often or always used full costs (total manufacturing cost or total cost). 62% of companies often or always used variable costs (manufacturing or total variable costs). 18% never or rarely used full costs, 13% never or rarely used variable costs and 54% often or always used both full and variable costs.

In **Ireland**, Clarke (1992) studding 129 financial controllers from large manufacturing firms and O'Dea and Clarke (1994) interviewing financial controllers in 16 multinational companies found, for most companies studied, that direct materials made up the majority, and direct labour and non-production overhead the minority of corporate costs. Production overhead represented a larger proportion of corporate costs than direct labour. This prompted Clarke (1992) to suggest that, "absorption of overhead is likely to be a major management concern".

In **Belgium,** Kerremans *et al.* (1991) have studied 76 industrial companies and Theunisse (1992) has conducted two questionnaires (99 companies and 36 companies)

and four case studies. Both they found that materials represented over half the costs incurred, and that direct labour represented less than 22% of total costs. Theunisse (1992) found that both full costs and variable costs were used in several management decisions, but full costs were used more often in make or buy decisions, and in the evaluation of the profitability of a product or a division.

Research among 152 engineering companies in **Sweden** by Ask and Ax (1992) states that direct labour represented on average between 10 and 20% of total manufacturing. They also found that the majority of small and medium sized companies preferred to use full costing (58,3%) or a combination of full and variable costing (29,9%) in decision making. The studied companies tended to use a single cost accounting system for the financial and management accounting purposes.

In **Denmark**, Sørensen and Israelsen (1994) studding 47 medium and large manufacturing firms found that the cost structure of their sample was on average material costs (57%), direct wages (22%) and manufacturing overhead (21%).

Research among 135 manufacturing units in **Finland** by Lukka and Granlund (1996) observed that material costs represented on average 45% of total costs, although the percentages varied between 5% and 85%. The average percentage for direct labour was 19%, although it represented between 20% and 39% of total costs in 44% of the units studied and less than 10% of total costs in 25% of the units. Manufacturing overheads were not very high, on average represented only 17% of total costs. They also found that because of simplicity companies were using a single cost accounting system and companies did not want to spend time recognising figures between the financial and management accounting systems.

Consequently, in many companies the decline in the total cost of labour and the rise in the total cost of overheads relative to the total cost of manufacturing have led to the need to undertake the implementation of modern costing principles. Although there is some variation in these results, in general they indicate that the majority of costs consist of materials and that labour represents the minority of costs. Thus, the claim made by many commentators that overheads now represent the dominant factory costs is not supported by the empirical studies (Brierly *et al.*, 2001).

About the use of full or variable costing in management decisions several surveys have reported similar results in many countries. Companies tend to prepare management accounting information on a similar basis to financial accounting information. Nevertheless, there exists variation in product costing practice which clearly indicates that managers related with cost analyses should understand the differences in cost measurement systems so that they can apply them in appropriate situations.

Additionally, there is continuous research needed in order to assess the extent to which product cost structures and costing practices are changing over time and vary between industries or countries

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Summary

The paper summarises the research results of corporate cost structure and some aspects of product costing practice in Estonian and European manufacturing companies. In general researchers have studied the cost structures of manufacturing companies by dividing costs between direct materials, direct labour and manufacturing overhead. The review has shown that many Estonian and European companies are using in management decisions full costs in preference to variable costs. Variation in product costing practice clearly indicates that managers related with cost analyses should understand the differences in cost measurement systems so that they can apply them in appropriate situations.

COMPARISON OF CONTROLLING SYSTEMS IN POLISH AND GERMAN CONSTRUCTION COMPANIES

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Introduction

Construction sector is one of the most important sectors in the economy. Despite of an increasing interest of investors in new industries like IT, pharmaceutical and biotechnology sectors or the construction sector still generates a huge part of GDP in many countries (for example 7,4% of GDP of Poland in 1998, 5,5% of GDP of Germany in 1999) and employs many people.

Because of the structure of the demand on the construction market the construction sector is strongly influenced by fluctuations of economic conditions. Both in Poland and in Germany construction sectors have been undergoing a period of crisis since 2000. The crisis began after the boom on the construction market, which was the result of the quick development of other industries in the late 90-ies. As a result of its susceptibility to the fluctuations the economic conditions, the decrease of the demand in the construction sector in Poland and Germany was significantly stronger than in other sectors, for example in Poland the decrease was 23% in 2001 compared to 1997, in Germany the decrease was 8% in 2001 compared to 1999 (see www.stat.gov.pl, www.destastis.de, www.bossa.pl). The situation of the construction sector worsens due to long terms of payments and delayed payments. Problems with liquidity of the construction companies often result in bankruptcy of construction companies, especially smaller ones. However in the time of crisis not only small companies are in danger of bankruptcy. For example one of biggest German construction holdings Holzmann employing more than 70 000 and receiving significant subsidies from the government went bankrupt during the crisis. Other danger characteristic of the period of crisis is acquisition made by an other company. In exemplum one of the biggest Polish construction companies Exbud, has been taken over by Scandinavian Holding Skanska.

The consequences of the decreasing demand are the escalated competition and the decrease in therate of margin realized on contracts. In more profitable periods construction companies in Poland used to generate margin reaching 30% and at the moment the margin does not exceed 8%. The economic slump together with strong competition create a need to reorganize many areas of the company. The period of crisis forces actions intended to cut costs, increase co-ordination of processes in the company and eliminate internal disruptions. Such actions are the main tasks of the controlling (see R. Simons p. 3-15, P. Horvath p. 109-124).

Specific features of the construction sector as a factor influencing controlling systems

Controlling is a cross - functional coordinating system, which should facilitate company management by providing information necessary for making optimal decisions. (see R. N. Anthony, V. Govindarajan p. 71-75)

A controlling system should be matched tailored to suit specific features of the firm.

Construction sector is considered to be one of more traditional sectors of economy. There are the following specific features of the construction sector: high market fragmentation, execution of long-term, multi-million projects. It results in a relatively high risk caused by potential changes in the business environment. One risk factor is the change of material and services prices, that could occur during the realization of project. The financial situation of the contractor also could create a risk. In case of bankruptcy or solvency problems of the client, construction firm could lose its receivables or the project could be suspended which would negatively influence cash flow of the enterprise. In the course of executing foreign contract another risk that could arise is currency risk.

Construction companies use widely the project or matrix organizational structure. The project organizational structure is characterized by division not according to functions but according to executed projects. Every project is supervised by a project manager, who has often wide decision freedom, and is fully responsible for the successful completion of a project. Successful completion of a project means finishing it according to the specification and other documentation conditions, on time, within the budget. The matrix structure is often a combination of project and functional structure. In a matrix-type organization an employee is simultaneously subordinated to project manager and functional manage (see H. Kerzner p. 113-142).

Objectives of the paper and methods of the research

The main objective of this paper is to depict the organization and functioning of controlling systems[4] in two leading construction companies from Germany and Poland at the beginning of difficult for them period of stagnation, to point out main problem-generating areas and planned changes, which are supposed to influence positively the effectiveness of the presented companies.

The main research areas in both enterprises are the following:

- procedures of data collecting, analysing and reporting used in controlling,
- tools and techniques used in controlling,
- organization of controlling departments.

The research project was conducted in both companies during 2000-2001 and was carried out using following research methods:

- standardized interviews with employees of both companies,
- critical analysis of documents and procedures,
- observation of daily routine of controllers.

Statistical methods were not employed due to the small sample size – the research project was carried out in 2 companies, in which interviews were conducted with about 40 persons at different management levels, employed in different departments. The research was conducted in a Polish company by a research team of the Department of Accounting, from the University of Łódź. The team consisted of Prof.

[4] Called also management control systems.

Irena Sobanska, Dr Tomasz Wnuk and two PhD students – Jan Michalak and Radoslaw Gajewski. The research in a German company was conducted by Jan Michalak under the supervision of Prof. Irena Sobanska.

In social sciences, including accounting, the use of case studies and descriptions of procedures are common methods of expanding the knowledge of academics and practitioners. (See R. Scapens, R.J. Ryan, M. Theobald p. 112-130) In the paper is presented only part of theresearch results because of the imposed size of the paper. Due to the business secrecy reasons the names of the companies were changed. The Polish company was given a fictional name - Polbud and the German company - Deutschbau.

Similarities and differences between the companies

Construction market is highly fragmented in Poland as well as in Germany. Although both enterprises have high level of employment – about 9000 people in Deutschbau and about 1500 people in Polbud as well as high sales – about 2000 mln EUR – Deutschbau and about 400 mln EUR Polbud, their market share stays at a low level of about 1-2%. Despite a low market share both firms are considered to be among the biggest and most renowned in their countries. Hence their contract acquisition strategies are similar and focus on activity in all segments of construction market - from industrial constructions, roads, artificial lakes and dams to housing. Such a strong diversification is forced by the current market situation. Strong diversification helps to maintain a stable and relatively high level of acquired contracts resulting in stable cash flow. In all segments both companies specialize in general contracting executing the biggest and most challenging construction contracts. Large construction contracts enable the companies to obtain high contribution margins that cover high overheads resulting from complex structure of head office and local units. Acquisition and realization of big contracts helps to gain renown on the market. Consequently high renown helps to acquire new contracts. Both firms use services of subcontractors, either when there are no necessary skills in the company or when subcontractors offer lower prices than internal entities.

Both Polbud and Deutschbau represent the holding-type structure. Deutschbau comprises 30 companies and Polbud comprises 6 companies. Both holding have local divisions, that are more important for the management process than legally separated companies.

Creating local divisions is favourable for construction companies, because it enables them to build relationships with local authorities and inhabitants of the region. Nearness to the building site also helps to decrease the cost of construction services. High transport cost of heavy construction machines and people, in case of great distances to the building site could make the project unprofitable.

Both holdings focus on markets of home countries, but they also try to acquire and realize contracts abroad. They used to be more active on foreign markets in the past. However, the number of foreign contract decreased due to stronger competition, protectionist policy of governments towards construction market as well as domination of the international construction market by few biggest competitors.

Both holdings are highly centralized especially in the financial area. High centralization results from high risk connected with projects. Few unsuccessful large projects can cause a bankruptcy of a firm. Strategy is developed by the top management and medium and lower levels of management do not have much knowledge about the mission and strategy of the company. Last years were quite difficult for both companies and they had poor financial results, what is characteristic of construction firms in both countries.

There are also some significant differences between Deutschbau and Polbud resulting from differences between Polish and German construction markets. German construction market is bigger and more stable than Polish. Hence also Deutschbau is bigger than Polbud in terms of the number of employees and value of executed projects. As a result, Deutschbau is able to benefit from positive economies of scale. As the German capital market is also more developed than Polish, it is easier for Deutschbau to secure funds for its operations. High credit rates and a not very well developed system of mortgage credits are considered to be the main factors hindering the development of the construction industry in Poland.

Deutschbau has a product divisional structure. Divisions were created according to type products or services produced by the division: roads and underground constructions, housing and industrial constructions, production of construction materials.

Both holdings also have different structure of capital owners. The main shareholder in Deutschbau is a foreign construction holding, while Polbud has many individual and institutional shareholders. Deutschbau pursues more active acquisitions policy resulting in changing structure of the holding.

Comparison of organization and functioning of controlling systems

Due to multi-level organisational structure of presented enterprises resulting in different information needs of managers of various levels the structure and organization of controlling is multi-level.

Holding controlling

The highest level of controlling is holding controlling that supplies information directly for top management of both holdings. It cannot be equalled to strategic controlling, as in both presented companies it has features characteristic of operational controlling and uses tools peculiar to operational controlling.

Holding controlling collects the most aggregated data that after thorough analysis enable the board of directors to make proper decisions. Controlling departments in head offices are responsible for collecting data used by top management. Controlling departments are relatively small in both holdings and employ only several people. At the holding level most of the prepared analyses are based on financial data.

Main measures analysed in Deutschbau are the following:

1. Value of newly acquired contract;
2. Revenues from executed projects

Both above mentioned measures are observed in month period and cumulatively, separately for divisions, departments and more significant projects. These measures are also calculated for whole holdings and compared with measures calculated for the whole sector. The measures for the sector are prepared by enterprises association which are active in construction sector in Germany.

3. Free cash flow (informing about company liquidity),
4. Worth of payables and extended guarantees (informing about debt of company and level of financial risk);
5. The ways of investing of available cash (financial investments, acquisitions of other companies, investments in tangibles and intangibles);
6. Comparison of the financial result and main factors influencing this result with planned financial result and financial results of the company from past periods;
7. Number of employees in division into qualification groups as well as employees number and labour costs in all product divisions, local divisions and departments.

Main measures analysed in Polbud are following:

1. Analysis of revenues and the value of newly acquired contracts;
2. Cost analysis in division by types and entities in month period and accrued;
3. Employment and labour cost analysis;
4. Analysis of the financial statements of competitors quoted on Warsaw Stock Exchange, that can be treated as a substitute of comparison of German construction sector associations;
5. Detailed vertical and horizontal analysis of balance sheet and profit and loss account;
6. Production pro employee.

Budgeting

In both companies is used incremental, top down budgeting. In Polbud as well as in Deutchbau are prepared operational and financial budgets. There exist the following differences between budgeting in presented companies: there are more budgets and they are more detailed in the German enterprise, quarterly continuous (rolling) budgets are used in the German enterprise and traditional annual budgets are used in the Polish enterprise. The German company's budgeting procedure is also more formalized (in various procedures' statements and manuals) than in the Polish enterprise. In Polbud budgets are prepared only for the whole company, cost estimations prepared for every project are not included directly into the budgeting system.

Performance measurement and motivational system

The methods of connecting performance with motivational systems are different in both holdings. In Deutschbau the main part of bonus is paid after the end of a project, and in Polbud during the execution of the project. Both methods have advantages and disadvantages. The method employed in Deutschbau helps to tie closely profit of the project with the remuneration of project employees. Its main disadvantage may be demotivational influence on workers during the execution of project (people are not motivated if the bonus is strongly delayed). The motivation method used in Polbau enhances the morale of employees during the execution of the project, but it also

creates the risk of high labour cost even in case of unprofitable project. Sometimes the last stages of project are crucial for its financial success.

Division controlling

Divison controlling is realized in Deutschbau at the level of product divisions and geographical divisions and in Polbud at the level of geographical divisions. The scope of information prepared by controllers on division level is similar to the scope of information prepared at strategic level, but it is limited to the information concerning the given division. There exist slight differences in information scope prepared for various divisions in Deutschbau resulting from the market segments differences between the product divisions. Especially construction material division controlling gathers information peculiar to itself as it differs strongly from other divisions – it usually does not execute long-term projects as other product divisions. For information supplies in Deutscbau at division level are responsible controllers in divisions and in Polbud – controllers from the head office (as there are no controllers in divisions).

Project controlling

In Polbud project controlling focuses mainly on technical issues. The main tools used at this level are schedules, technical specifications, workload plans of labourers and equipment as well as cost calculations prepared by project managers, which are based on offer calculations prepared by sales department. In order to evaluate projects profit variations (between the planned and the actual profit are calculated) and time variations (delay or being ahead of schedule). Project managers are responsible for fulfilling controllers function at project level.

The organization of controlling at project level is significantly different from organization in Polbud. In Detschau every project has two project managers – technical project manager and economic project manager who, as a team, are responsible for the results of the project. Thanks to such organization – economic project manager can focus on financial control of the performance of executed project. Economic project manager is able to observe more thoroughly variations between the planned and the actual costs of individual construction services. It helps to realize dangerous (negative) unfavourable trends quickly and consequently to correct actions in order to increase profitability of the project.

In Deutschbau one of main parts of project controlling objective is periodical, formalized risk analysis of executed project. In Polbud risk analysis is conducted in a less formalized and non-periodical way.

Summarizing, on the basis of comparison of thesystems of Polish and German construction enterprises the following similarities can be pointed out:

- focus on financial measures,
- neglect of non-financial measures,
- focus on operational controlling,
- monthly period of internal reporting,
- lack of implementation of the newest controlling tools and techniques,
- controlling departments employing few people,

- communication problems between sales departments that prepare offers and controlling departments,
- use of many specialized (not integrated) computer software systems.

The most important differences between controlling systems in Polish and German construcion companiesare the following:
- the data in Deutschbau that are gathered are more detailed,
- the data in Deutschbau collected in more formalized manner, which is characteristic of Gernman companies (see D. Hahn p. 855-1208),
- there are more controllers in Deutschbau, who are employed in head office but also in product divisions and geographical divisions
- more data bases and standardized norms are developed in Deutschbau.

Planned changes in controlling systems

While the research was conducted both holdings planned to introduce changes in their controlling systems (i.e. introducing new methods and tools) in order to collect more accurate and useful data. Better information should help companies to meet better decisions and to gain sustained competitive advantage on a shrinking, more and more competitive market.

Some tendencies and plans were similar in both companies. Both companies intended to:
- buy and implement modern integrated computer systems that should help to gather more data, analyse it and present it in on-line mode; such systems enable use of more complicated and sophisticated mathematical data analysis methods as well as more interesting and clear presentation of analysis results;
- tighter connection between offer cost estimation and budgeting (thanks to integrated computer systems and new ways of communication);
- development of high quality data bases;
- stronger decentralization of controlling responsibilities;
- increase of pro-effectiveness and proactive attitude among employees.

Planned changes specific to Polbud were the following[5]:
- design and implementation of Balanced Scorecard,
- design and implementation of more detailed budgets and analyses,
- introduction of continuous quarterly budgeting,
- application of elements of ABC and Life Cycle Costing in cost budgeting and analysing.

In Deutschbau were planned the following changes:
- improvement of risk controlling,
- development of benchmarking,
- increase in use of relative data (presented in relation to the whole sector and the main competitors).

[5] Planned changes in controlling systems were developed in cooperation with research team consisting of specialists from the Accounting Department of the University of Lodz headed by prof. Irena Sobanska

Summary
Controlling systems in both holdings is similar to each other in general premises. Both use similar tools and corresponding analyses. Both execute budgeting, but the level of details is different. There exist differences between controlling systems resulting from strategies of companies, situation on the market and data availability. For instance in Deutschbau one of performance measures, which is considered to be the most crucial is liquidity. In Polbud the management uses more detailed balance sheet analysis to evaluate company performance.

Controlling systems in both holdings are undergoing a period of intensive development. Both companies try to enlarge the scope of collected data, basing on the rule "what you can't measure, you can't manage". On the other side, management of both companies try to avoid data overload, that can result in "analyse till paralyse" attitude.

In the perspective of Poland's soon entering the European union and full liberalization of construction market the competition between Polish and German construction companies will increase. According to P. Di Maggioo and W. Powell (see P. Di Maggioo and W. Powell p. 147-160) enterprises start to resemble each other because of:

- cultural expectations of clients, competitors, suppliers, governments,
- uncertainty of the environment,
- picture of professionalism created between professionals.

As shown in this article the process of unification of controlling systems in Polish and German construction companies develops. The speed of changes in controlling systems and increase in effectiveness are factors influencing the ability to compete on highly competitive construction market.

Abstract
The construction sector is one of the most important sectors in the economy. The main objective of this paper is to depict the organization and functioning of controlling systems in two leading construction companies from Germany and Poland at the beginning of a difficult for them period of stagnation, to point out main problem-generating areas and planned changes, which are supposed to influence positively the effectiveness of the presented companies. The controlling system is depicted at three levels: holding, division and project level.

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Besides in the paper were used:

- financial statements and documents of the presented companies
- not published research report of the research team of Accounting Department of University of Lodz, under the supervision of prof. Irena Sobanska

УПРАВЛЕНИЕ ОБОРОТНЫМ КАПИТАЛОМ ЭСТОНСКИХ ПРЕДПРИЯТИЙ: ПРОБЛЕМЫ, НОВЫЕ ПОДХОДЫ И АЛЬТЕРНАТИВЫ

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1. Введение

Одним из важных аспектов финансового управления предприятия является управление оборотным капиталом. Политика управления оборотным капиталом касается двух основных вопросов: (1) какой уровень оборотных средств наиболее приемлем для данного предприятия, (2) за счет каких источников целесообразно их финансировать?

Целью данной статьи является разработка рекомендаций по многовариантному управлению оборотным капиталом в условиях переходной экомики. Кроме того, в статье, опираясь на результаты практического исследования, предлагаются комплексы важнейших целевых финансовых нормативов, связанных с реализацией той или иной стратегии, которые могут быть использованы средними предприятиями Эстонии в рамках конкретного выбранного ими сценария и стратегии.

2. Куб финансового планирования и его использование в управлении оборотным капиталом

Финансовое планирование на предприятии в значительной степени связано с управлением оборотным капиталом. При этом основной проблемой является разнообразие методов финансового проектирования путем многовариантных расчетов. Вопросами краткосрочного финансового планирования занимались многие известные экономисты, такие как: Brigham, E.F., Gapenski, L., Ross, S.A., Westerfield, R.W., Jordan, B.D. (Ross *et al* 2000, p. 553-585), Ehrhard, M., Gallinger, G.W., Healy, P.B., Hill, N.C., Sartoris, W.I., Smith, K.V., Shim, J.K., Siegel, J.G. (Шим *et al* 199б, с. 221-296) и другие, но впервые на необходимость использования многовариантного подхода обратил внимание и предложил методику E. Brigham (Brigham 1992, p. 697-751; Brigham *et al* 1999, p. 697-795, Бригхем *et al* 199б, с. 256-301).

Руководители предприятия должны: (1) прогнозировать сценарии экономического развития на ближайшее время, (2) выбирать подходящую стратегию (политику) управления оборотным капиталом и в соответствии со сценариями экономического развития и возможными стратегиями управления оборотным капиталом (3) планировать соответствующие объемы продаж, а также (4) объем имущества и источников его финансирования (т.е. объем баланса). Так как горизонт планирования охватывает ряд лет и на каждый год целесообразно разрабатывать ряд возможных сценариев экономического развития и ряд возможных стратегий управления оборотным капиталом, то соответственно предприятие должно разработать большое количество планов продаж и объемом балансов, которые в совокупности можно представить в виде куба финансового планирования (Raudsepp 1996, lk 38-43). Например, если горизонт планирования составляет 4 года, на каждый год разработано 4 сценария общего экономического

развития и каждому сценарию соответствует 4 возможных стратегии управления оборотным капиталом, то всего на планируемый период у предприятия должно (может) быть 64 варианта объема продаж и баланса (см. рис. 1).

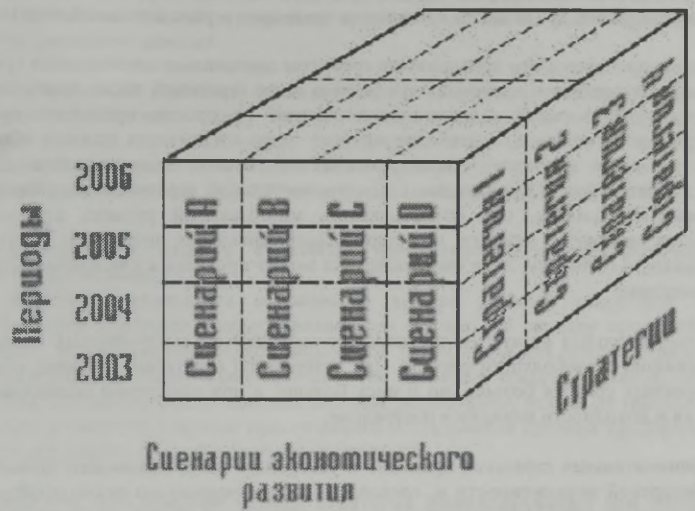

Рис. 1. Куб финансового планирования.

После того, как возможности развития экономики спрогнозированы и выбрана стратегия управления оборотным капиталом, финансовые менеджеры могут заниматься одним конкретным маленьким кубом, который требуется дополнить финансовыми планами (плановым отчетом о прибыли, плановым балансом, отчетом о движении денежных средств) и анализами, разработанными на базе полученных отчетных данных и прогнозов, разработанных в соответствии с выбранной стратегией (в т.ч. анализом финансовых коэффициентов, периода оборота денежных средств, финансового состояния, рентабельности и т.д.).

3. Альтернативные стратегии объема и структуры оборотного капитала

Основными альтернативными стратегиями в отношении общего уровня оборотных средств, который предприятия считает необходимым иметь для поддержания заданного уровня продаж, является осторожная, умеренная и ограничительная.

При осторожной стратегии допускается высокий уровень денежных средств, ликвидных ценных бумаг, производственных запасов и дебиторской задолженности. При ограничительной стратегии денежные средства, ликвидные ценные бумаги, производственные запасы и дебиторская задолженность сведены до минимума. Умеренная стратегия находится между двумя названными.

В условиях определенности, когда объем реализации, затраты, срок выполнения заказа, сроки платежей и т.д. точно известны, любое предприятие предпочло бы

поддерживать только минимально необходимый уровень оборотных средств. Превышение этого минимума приводит к увеличению потребностей во внешних источниках финансирования оборотных средств без адекватного увеличения прибыли. Необоснованное сокращение оборотных средств приводит к падению объема продаж и неэффективности производства из-за нехватки производственных запасов, что является следствием чрезмерно ограничительной политики.

При неопределенности предприятию требуется минимально необходимая сумма денежных средств и материальных запасов плюс страховой запас. Аналогично уровень дебиторской задолженности зависит от сроков предоставляемого покупателям кредита, а наиболее жесткие сроки кредита для данного объема продаж дают наиболее низкий уровень дебиторской задолженности. Если предприятие будет придерживаться ограничительной стратегии в отношении оборотных средств, оно будет держать минимальный уровень страховых запасов денежных средств и материальных запасов и проводить жесткую кредитную политику, хотя такая политика может привести к снижению объема реализации.

Ограничительная стратегия предполагает меньший объем оборотных средств, но связана с наибольшим риском. При осторожной стратегии наоборот, объем оборотных средств больше, но и риск больше, а при умеренной соотношения риска и доходности находятся посередине.

Ограничительная стратегия приводит к ускорению оборачиваемости запасов и дебиторской задолженности и, следовательно, к сокращению периода оборота денежных средств. Напротив, при осторожной стратегии более высокий уровень запасов и дебиторской задолженности и, следовательно, более продолжительный период оборачиваемости запасов, дебиторской задолженности и денежных средств. При умеренной стратегии период оборота денежных средств находится между двумя вышеописанными.

Предприятие может сократить уровень оборотных средств без ущерба в отношении объема продаж и операционных затрат, например, за счет поставки материалов методом «точно в срок». Размер оборотных средств оказывает существенное влияние на прибыль, а потребность в оборотных средствах зависит от источников их финансирования.

4. Альтернативные стратегии финансирования оборотных средств

Основными стратегиями финансирования оборотных средств являются строгая, умеренная и либеральная. Основным различием стратегий является величина краткосрочных кредитов. При строгой, в основном, используются краткосрочные (более дешевые) кредиты. При этом предприятие может попасть в ситуацию, когда будет вынуждено согласиться с повышением процентной ставки при возобновлении кредита в случае невозможности его возврата. Цена краткосрочного кредита в большинстве случаев ниже, чем долгосрочного (хотя, с другой стороны, процент по долгосрочному кредиту относительно стабилен, а по краткосрочному широко колеблется, порой достигая высокого уровня). Порой предприятие жертвует надежностью ради получения дополнительной прибыли, т.е его риск погашения обязательств выше. Если предприятие использует много краткосрочных кредитов, то может возникнуть ситуация, когда оно не в

состоянии вернуть их в срок, если кредитор откажется продлить срок. Это может привести предприятие к банкротству.

Умеренная стратегия отличается тем, что при ней согласуются сроки активов и обязательств по группам. Риск того, что предприятие окажется не в состоянии рассчитаться по свои обязательствам, средний и источники финансирования, в основном, краткосрочные.

При либеральной стратегии финансирование постоянных и части оборотных средств происходит через долгосрочные обязательства и спонтанную краткосрочн ую задолженность. Предприятие мало использует планового краткосрочного кредита. В период затишья резервные средства сохраняются в виде ликвидных ценных бумаг. Это политика с минимальной долей риска.

5. Обоснование выбора стратегии финансирования предприятия в условиях Эстонии

В таблице 1 приводится обоснование выбора строгой, умеренной или либеральной стратегии финансирования для средних по размеру предприятий Эстонии в условиях переходной экономики. В том числе для каждой стратегии предлагаются целевые нормативы оборота денежных средств, ликвидности и доходности собственного капитала, которые разработаны, исходя из требований теории, а также результатов практического исследования средних предприятий и консультаций с финансистами и директорами.

Таблица 1. Обоснование выбора стратегии финансирования для средних предприятиях Эстонии

Основные характеристики	Стратегии финансирования		
	Строгая	**Умеренная**	**Либеральная**
Величина оборотного капитала	Обоснованно маленькая	Средняя (оптимальная)	Допустимо большая
Источники финансирования	Преимущественно краткосрочные (дешевые)	Скорее краткосрочные	В основном долгосрочные (дорогие)
Риск	Высокий	Средний	Низкий
Затраты по обслуживанию дебиторской задолженности и содержанию запасов	Обоснованно низкие	Средние	(зачастую необоснованно) большие
Период оборота денежных средств	Обоснованно короткий (например 30 дней)	Средний (30-65 дней)	Приемлемо длинный (65-135 дней)
Ликвидность	Приемлемо низкая (коэффициент достаточности оборотного капитала до 0,9)	Средняя (коэффициент достаточности оборотного капитала 0,9-1,8)	Относительно высокая (коэффициент достаточности оборотного капитала свыше 1,8)
Доходность	Высокая (ROE >18%)	Умеренная (ROE 12-18%)	Низкая (ROE <12%)

6. Методика разработки стратегии управления оборотным капиталом предприятия (практический пример)

Для разработки многовариантного финансового проекта предприятию желательно использовать электронную стандартную программу обработки табличных данных (например, MS Excel). Методику разработки стратегии управления оборотным капиталом предприятия проиллюстрируем практическими данными среднего по величине эстонского предприятия N.

В начале предприятие должно составить прогнозы продаж, соответствующие сценариям экономического развития и выбираемой стратегии управления оборотным капиталом, заполнив следующую матричную таблицу.

Таблица 2. Связь объема нетто-продаж предприятия с выбираемой стратегией управления оборотным капиталом

(тыс.крон)

Сценарии экономического развития	*Стратегия управления оборотным капиталом*		
	Строгая	Умеренная	**Либеральная**
Слабое	2500	2704	2800
Среднее	2542	3004	3305
Сильное	3185	3305	3606

Далее, в соответствии со сценарием экономического развития и выбранной стратегией управления оборотным капиталом составляется плановый баланс. При этом особое внимание обращается на общий объем баланса и изменения отдельных балансовых статей. Например, при либеральной стратегии дебиторская задолженность и запасы могут возрасти, а при строгой уменьшиться.

Таблица 3. Плановый баланс предприятия при среднем экономическом прогнозе

(тыс. крон)

Статьи активов	**Строгая**	**Умеренная**	**Либеральная**	**Статьи пассивов**	**Строгая**	**Умеренная**	**Либеральная**
Касса	516	516	516	Кредиторская задолженность	468	468	468
Дебиторская задолженность	450	480	500	Краткосрочный кредит	170	170	170
Запасы	400	458	470	Прочие краткосрочные обязательства			
Прочее оборотное имущество							
Оборотные средства, всего	1366	1454	1486	Краткосрочные обязательства, всего	638	638	638
Основное имущество (остаточная стоимость)	940	940	940	Долгосрочная задолженность	80	80	80

Прочее имущество				Собственный капитал	1588	1676	1708
Имущество, всего	**2306**	**9394**	**2426**	Обязательства и собственный капитал, всего	**2306**	**2394**	**2426**

На следущем этапе составляются проекции прибыли, исходя из сценариев экономического развития и выбранной стратегии управления оборотным капиталом. При этом исходят из ранее спрогнозированного объема нетто-продаж. Особое внимание уделяется постоянным затратам, которые при строгой стратегии уменьшаются, а при либеральной могут возрасти.

Таблица 5. Проекции прибыли предприятия при среднем экономическом прогнозе

(тыс. крон)

	Строгая	**Умеренная**	**Либеральная**
Нетто-продажи	2542	3004	3305
Переменные затраты	2288	2704	2975
Постоянные затраты	65	70	75
Прибыль до уплаты процентов и налогов (EBIT)	189	230	256
Уплаченные проценты	32	32	32
Доналоговая прибыль (EBT)	157	198	224
Налоги	41	52	58
Чистая прибыль (NI)	116	147	165

Далее, на основе составленных таблиц проводится основательный анализ предприятия и обосновывается целесообразность выбора стратегии управления оборотным капиталом. При анализе используются основные финансовые коэффициенты, которые в нашем примере при среднем экономическом сценарии имеют следующие цифровые значения, приведенные в таб. 6.

Таблица 6. Основные финансовые коэффициенты предприятия при среднем экономическом прогнозе

	Строгая	**Умеренная**	**Либеральная**
Предел доходности (PM)	4,58%	4,89%	5,00%
Базовая способность приносить доход (BEP)	8,20%	9,62%	10,53%
Рентабельность активов (ROA)	5,04%	6,13%	6,82%
Рентабельность собственного капитала (ROE)	7,33%	8,76%	9,68%
Коэффициент задолженности (D/A)	31,14%	29,99%	29,60%
Коэффициент покрытия процента (TIE)	5,91	7,20	7,98
Оборачиваемость запасов	1,10	1,25	1,36
Период оборачиваемости дебиторской задолженности (DSO)	5,64	6,25	6,60
Оборачиваемость основного имущества	2,70	3,20	3,52
Оборачиваемость общего объема активов	1,10	1,25	1,36
Коэффициент покрытия платежеспособности	2,14	2,28	2,33
Коэффициент срочной ликвидности	1,51	1,56	1,59
ROIC	6,07	7,12	7,79

В практическом примере мы привели расчетные данные только по тем стратегиям управления оборотным капиталом, которые связаны со средним экономическим прогнозом, но такие же расчеты следует проводить в случае слабого и сильного экономического прогноза (также в разрезе трех видов стратегий управления оборотным капиталом). Полностью по всем трем сценариям и соответственно 9 стратегиям приведем лишь значения коэффициента доходности собственного капитала (ROE), которые сравним с целевыми нормативами, приведенными в табл. 1.

Таблица 7. ROE предприятия при различных экономических сценариях и стратегиях управления оборотным капиталом

(%)

Экономический сценарий	**Строгая**	**Умеренная**	**Либеральная**
Слабое экономическое развитие	7,44	7,13	7,50
Среднее экономическое развитие	8,76	7,33	9,68
Сильное экономическое развитие	10,09	10,32	10,99
Среднее ROE	**8,76**	**8,26**	**9,39**

Как показывают расчеты, у анализируемого предприятия самый лучший результат ROE (10,99%) получается при сочетании сценария сильного экономического развития и либеральной стратегии управления оборотным капиталом. Среднее значение ROE выше также при либеральной стратегии (9,39%). Сравнение полученных результатов с целевыми нормативами показывает расхождение теории с реальной практикой в условиях переходой экономики. Как следует из таблицы 1, по теории, самую высокую доходность собственного капитала должна давать строгая стратегия и самую низкую либеральная. У нас же результат противоположный – самый высокий ROE получается при либеральной стратегии. При этом полученное ROE несколько ниже целевого норматива (12%). Мы объясняем это противоречие теории и практики, прежде всего, переходным периодом эстонской экономики и либеральным развитием рынка. Кроме того, из полученных плановых расчетов результатов реализации различных стратегий следует отметить относительно высокие коэффициенты платежеспособности и срочной ликвидности, получаемые при либеральной стратегии. Это можно объяснить благоприятным для предприятий Эстонии законом о подоходном налоге, предписывающим платить подоходный налог лишь с выплачиваемых дивидендов и освобождающий от налога реинвестированную прибыль, что в целом улучшает платежеспособность предприятий.

В заключение следует сказать, что представленная в статье методика многовариантного подхода к разработке стратегий управления оборотным капиталом для средних предприятий Эстонии очень полезна для практиков, так как помогает избежать недо- или перефинансирования. Также имеются технические возможности ее применения. Что же касается некоторого расхождения выводов теории и практики, то в этой части в перспективе мы предполагаем продолжить свои исследования и откорректировать целевые величины финансовых коэффициентов.

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WORKING CAPITAL MANAGEMENT IN ESTONIAN FIRMS: PROBLEMS, NEW APPROACHES AND ALTERNATIVES

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Conclusions

In this paper we have studied the following problem: how to advise rational (suitable) working capital management strategies (policies) for Estonian firms according to the stage (scenario) of the economic development (i.e. weak, average, strong). The main findings of the paper are summarized as follows.

Firstly, we studied peculiarities and possibilities to elaborate desirable policy (i.e. restrictive, moderate, relaxed). In Estonian firms approximately 60 percent of a financial manager's time is devoted to short-term financial management, i.e. working capital management. The financing and investment of working capital should be considered simultaneously, but also take into consideration the optional policy and scenario development of the economy.

Secondly, we analyzed various strategies related to the distinctive character of transition economy. According to our results, in condition of transition economy, the Estonian firms preferred relaxed (liberal) strategy (policy) of working capital management, because in these conditions most of the financial ratios are turned out better (higher ROE, ROA, etc.).

Thirdly, we suggested to Estonian firms' the basic starting point to achieve the desired effect. For that needs we recommended financial managers elaborate for needs of own firm target financial ratios (normative figures). Normative figures are key elements in financial management.

Finally, we confirmed that the consequences of the over- or under-investment (i.e. working capital policy is concerned with determining the total amount and composition of the firm's current assets and current liabilities) can be extremely serious, if not fatal, for the firm. That phenomenon is favored by Estonian tax law (retained earnings invested exempt from taxes, untaxed. In conclusion, the paper shows that the failure to adopt rational working capital policy may jeopardize long-term growth and even the firm's survival. For that we need to look at the more detailed requirements of working capital financing, and examine some alternative working capital policies in condition of the transition economy.

THE USE OF TAX-BASED TRADING STRATEGIES ON ESTONIAN STOCK MARKET

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Introduction

A trading strategy is usually designed in order to maximize the after-tax profits received by the investor given his risk tolerance, the investment horizon, the amount of resources, and the need for regular cash receipts. However, under certain circumstances the investor may prefer to use trading strategies that will primarily help to reduce his current or future tax liabilities. These are so-called tax-based trading strategies. The purpose of this article is to investigate the profitability and the use of one of the most widespread tax-based trading strategy in Estonia. This particular strategy bases on taxation differences between dividends and capital gain. The article is organized as follows. The paper begins with a short description of the strategy and with an explanation why it is possible to create such strategy and how it works. The next section investigates the profitability of such strategy based on Estonian stock market data from time period of 2000-2002. The last section tries to find out how extensive the use of this strategy actually is by investigating trading activity and changes in ownership structures of listed companies around the cum-dividend date.

1. Description of the strategy

The strategy under consideration is actually very simple. First, an investor selects a company, which is going to pay out dividends. Investor buys common stocks of the company just before the cum-dividend date and sells them just after the ex-dividend date. This means that the particular investor has the right to receive dividends from the company. He buys the stock with the right to receive dividends from the company and sells it without the right to dividends. In a world with perfect capital markets (no taxes, no transaction costs etc) the market price of common stock will drop exactly by the amount of discounted value of dividends. Therefore in the case of perfect capital market such a strategy is meaningless. However if there are taxes on dividends and capital gains and these two sources of income are taxed differently, there may be incentives to pursue trading strategy that bases on these differences in taxation.

Dividends and capital gains are taxed under rather different rules in Estonia. Although the taxation of dividends on corporate level does affect the effectiveness of the strategy, let's concentrate to the taxation of dividends on investor level. On investor level there is no taxes on dividend income if the receiver is resident or nonresident whose holding in the company exceeds 25%. Since the usual practice for listed companies is to pay out dividends in a way that the size of net dividends does not depend on residency of receiver, some investor clearly should prefer dividends to capital gain. In the case of capital gain, the taxation also depends on the residency and juridical form. Realized capital gain earned by resident natural person is taxed with ordinary income tax rate of 26%. In 2000 a major tax reform took place in Estonia. The most important feature of the tax reform was that the moment of corporate

[1] The author would like to thank Tallinn Stock Exchange, who kindly provided the data about ownership structures, and Dmitri Jegorov from Estonian National Tax Board for useful comments and suggestions.

taxation in Estonia has shifted from the period of earning the profits to the period of their distribution in either explicit (dividends) or implicit ways (the latter include fringe benefits, expenses unrelated to business etc.). Therefore in the case of resident legal person, the realized capital gain is not taxed (or more precisely not taxed before the dividends are paid out). Nonresident investors don't have to pay taxes on capital gain (earned from transactions with securities) to the Estonian government either[2]. Whether they must bear some tax burden depends on the income tax law of countries of their origin. These aspects allow arguing that some investors (resident natural persons) should prefer income in form of dividends and some investors should prefer (nonresidents) the income in form of capital gain.

Under Estonian income tax law, the use of strategy described in the first paragraph has quite big potential. If resident natural person buys a common stock before the ex-dividend date, he will receive dividends that are not taxed on individual level. After the ex-dividend date he sells common stocks and since the market price is lower now the strategy creates a capital loss which can be used in order to reduce taxable capital gain from other transactions with securities.

Of course all transactions should have two sides both interested in trading. In the case of tax-based strategy described earlier the other side of the transaction should be nonresident private investor. Nonresident private investor has also an opportunity to reduce taxes by using the strategy. He sells the stock before the ex-dividend date and buys it back after that date. He will probably receive capital gain, which is not taxed (at least by Estonian government) and he won't have to pay additional taxes on dividends because he doesn't receive any.

In several countries, the strategy described above would be viewed as "wash sale". "Wash sales" are defined in the tax law of the United States as situations in which the taxpayer both sells and purchases substantially identical stocks or bonds within 30 days (Rice, 1993, chapter 5, p. 27). The purchase may either follow or precede the sale as long as both occur within 30 days of each other. In some countries losses from "wash sales" are not recognized for tax purposes. This means that the investor's position must probably be exposed to a nontrivial degree of risk for a longer period to permit the deduction of the capital loss. There is no such restriction in Estonia. The only restriction in the case of Estonia is the prohibition to make deals between related parties.

So it seems that if there are taxes but no other capital market imperfections, tax-based trading strategies may be profitable. In real life there are always some kind of transaction costs involved. Analysts commonly distinguish between two major components of trading costs: explicit costs and implicit costs. The main explicit cost is the commission paid to the broker for execution. The main implicit transaction cost is the bid-ask spread. While commission fee doesn't depend on liquidity or other

[2] There is one exception to this rule. If nonresident investor who owns a holding of at least 10 per cent in a company of whose property more than 75 per cent is made up of immovables or structures as movables, which are located in Estonia, sells it then the realized capital gain is taxed by Estonian government.

characteristics of the security, the bid-ask spread is bigger in case of stocks with lower liquidity (see table 1).

Table 1 clearly indicates a relationship between trading costs and liquidity. In case of Hansabank, Eesti Telekom and Norma the average bid-ask spread was relatively small in 2001. However in case of less liquid stocks (e.g. Rakvere Meat Processing Plant, Tallinn Pharmaceutical Plant or XXL.EE) the spreads exceeded 10 %. Since the strategy analyzed in this article is a short-term strategy with relatively low profitability, the control of transaction costs is a matter of great importance.

Table 1

Liquidity and Average Bid-Ask Spreads of Companies Listed on Tallinn Stock Exchange (TSE) in 2001

Name of the Company	Measures of Liquidity			Average Bid-Ask Spread
	Percentage of trading days without any transaction	No. of Trans-actions	Turnover on TSE (Millions EEK)	
Hansabank	0,00%	8654	2043,44	0,47%
Eesti Telekom	0,00%	10463	1108,15	0,95%
Norma	0,39%	3042	405,52	1,02%
Saku Brewery	4,31%	937	46,42	1,82%
Merko Ehitus	27,06%	543	52,05	2,24%
Viisnurk	38,43%	338	25,37	2,33%
Harju Electricity	45,10%	398	27,19	2,99%
Baltika	40,39%	301	17,95	3,34%
Tallinn Department Store	31,76%	345	24,78	5,14%
Estiko	35,29%	371	5,75	5,34%
Kalev	40,00%	318	11,63	5,93%
Tallinn Cold Store*	70,98%	131	3,3	7,74%
Sampo Bank	64,31%	173	2,21	9,61%
Klementi	40,39%	297	2,25	9,85%
Rakvere Meat Processing Plant	70,20%	126	12,29	11,01%
Tallinn Pharmaceutical Plant	52,16%	226	1,88	14,10%
XXL.EE*	82,35%	82	0,65	20,00%

All calculations are based on data obtained from official website of Tallinn Stock Exchange (www.hex.ee). For calculations of bid-ask spreads daily closing bid and ask prices were used. Companies labeled with asterisk are not listed on Tallinn Stock Exchange any more.

2. The profitability of the strategy

In previous section the rationale for specific tax-based trading strategy was presented. In order to analyze the profitability of described strategy in real life, following assumptions were made:

- I set of assumptions: There are no transaction costs and the true market value of the common stock can be estimated by taking the average of bid and ask price. Investor buys the stock on cum-dividend date and sells it after three trading days. In order to take into the account possible reductions in future taxes that arise due to the use of this strategy, the present value of tax reduction associated with the strategy has been calculated. This present value has been calculated by using a

risk-free interest rate (5% per year) and by assuming that there is an one year time span between the use of the strategy and actual reduction in tax liabilities.

- II set of assumptions: The second set of assumptions differs from the first one by taking into the account the difference between the bid and the ask price. Investor buys the stock at the ask price and sells it at the bid price. The rest is similar to the first set of assumptions
- III set of assumptions: Third set of assumptions is even less restrictive by introducing additional trading costs in form of brokers fee in an amount of 0.5% of the value of transaction. Under this set of assumption the strategy is considered to be profitable only in case if the rate of return exceeds 0.27% per week (i.e. 15% per year). Since the risk associated with common stocks in emerging market is rather difficult to estimate, the same average rate of return was used in case of all stocks in the sample. The rest of assumptions are similar to the second set.

In order to illustrate the difference between these three sets let's take the following example. In 2002 Hansabank paid dividends in an amount of 4 EEK/per share. The bid and ask prices on cum-dividend date and three trading days after it are presented in next table.

Table 2

Bid and ask prices of Hansabank share

Date	Bid Price	Ask Price
Cum-dividend Date (17.April 2002)	222.81	223.12
T+3 (22.April 2002)	218.58	219.37

Under first set of assumptions, the strategy gave a capital loss in an amount of 3.99 EEK/share, which was fully covered by dividends of 4 EEK/share. The realized capital loss would give an opportunity to reduce the present value of future taxes on capital gains in an amount of 0.988 EEK/share. Therefore the total profit from the strategy is positive (0.998 EEK/share) and the profitability of the strategy is ca 0.45% or ca 26% per year. Under the second set of assumptions the strategy gave a capital loss in an amount of 4.54 EEK/share. If there were no tax advantage associated with this strategy, the strategy would be unprofitable since dividends did not cover the capital loss. However taking into the account the present value of future tax reduction in an amount of 1.12 EEK per share, the total profit from the strategy is 0.58 EEK per share and the profitability of the strategy ca 0.26% or 14.5% per year. Under the third set of assumptions the strategy gave a capital loss in an amount of 6.75 EEK per share. The present value of future tax reduction is therefore 1.40[3]. The sum of dividend and the present value of tax advantage is smaller than capital loss and therefore the strategy is unprofitable and gives a loss in amount of 1.35 EEK per share.

The full sample for the empirical analysis consists of three-year (2000-2002) data about 8 companies. The results of profitability analysis are presented in table 3.

[3] In calculating the loss for taxation purpose, one must take into the account the fact that under Estonian Income Tax Law, one can not increase the tax loss by explicit transaction costs associated with the sale of securities.

Table 3

The Profitability of the Tax-Based Trading Strategy in 2000-2002

Company name	I Set of Assumptions			II Set of Assumptions			III Set of Assumptions		
	2000	2001	2002	2000	2001	2002	2000	2001	2002
Hansabank	+	+	+	+	+	+	+	+	-
Eesti Telekom	+	-	-	+	-	-	-	-	-
Norma	+	+	+	+	+	+	+	+	+
Saku Brewery	-	+	+	-	-	-	-	-	-
Merko Ehitus	+	+	+	+	-	-	+	-	-
Harju Electricity	+	+	+	+	-	-	+	-	-
Baltika	+	+	N/A	+	-	N/A	-	-	N/A
Tallinn Department Store	-	+	+	-	+	+	-	-	-

As one can expect, the strategy gives best results when there are no transaction costs. If we take into the account actual trading costs, the strategy turns out to be ineffective in most cases. Therefore it is most important to find ways how to reduce these costs. One way is to use the strategy only in cases of most liquid stocks. Since there is a linkage between liquidity and the size of bid-ask spread, restricting themselves on most liquid securities would probably mean bigger chance to succeed. There are three stocks listed on Tallinn Stock Exchange, which can be considered liquid by every standard: Hansabank, Eesti Telekom and Norma. In case of Norma, the strategy turned out to be successful even under the third set of assumption in all three years. Pretty much the same can be said in case of Hansabank (even though the strategy didn't work well in 2002). Although, in case of Eesti Telekom the strategy had no success whatsoever in 2001 and 2002, this result was not caused by transaction costs. The second possibility is that investor himself finds the counter party to the transaction (these are so-called *delivery versus payment* transactions). If transaction costs are substantial that method may help to reduce total transaction costs. When in 2000 and 2001 most transactions during the 12-day interval surrounding the ex- and cum-dividend dates took place on stock exchange then in 2002 situation was quite different (see table 4).

Table 4

The percentage of daily trading that occur on stock exchange during the 12 day interval surrounding the ex- and cum-dividend dates

Company name	2000	2001	2002
Hansabank	45%	76%	36.2%
Eesti Telekom	70%	47.2%	40.2%
Norma	63.4%	53%	15%
Saku Brewery	57.7%	77.5%	32.2%
Merko Ehitus	45%	74%	4.2%
Harju Electricity	60%	100%	0.3%
Baltika	80%	72.6%	N/A
Tallinn Department Store	100%	92.7%	16.5%

The use of delivery versus payment (DVP) transactions is especially obvious in case of stocks with low liquidity like Tallinn Department Store, Harju Electricity, and Merko Ehitus.

3. The actual use of the strategy

In order to investigate the actual use of the strategy let's look at the data about trading activity. Table 5 presents average daily turnover during 12-day period surrounding the cum- and ex-dividend dates as well as average daily turnover during the rest of the year. In 2002, the average daily trading volume during this 12-day period is usually ten or in some cases even almost hundred times higher than during the rest of the first half of the year. Hansabank shares constitute the only exception from this pattern. In case of Hansabank some very big DVP transactions have taken place during the first half of 2002 (for example on March 1, the total turnover with Hansabank shares exceeded 2.6 billion EEK; the turnover with Hansabank shares on TSE was only 22 million EEK on that day). It is clear that the results are distorted due to these exceptional transactions. If we exclude this particular day from our sample, then the average daily turnover with Hansabank shares during the 12 day interval surrounding the cum- and ex-dividend dates, exceeds the average daily turnover during the rest of the first half of 2002 approximately by 12 million EEK.

In 2001 obvious increase in trading activity emerge only in case of shares of Eesti Telekom and Norma. In 2000 the differences between trading activities are relatively small as compared with previous examples

Table 5

Average Daily Turnover

(Thousands EEK)

Company name	2000		2001		2002	
	T1*	T2	T1	T2	T1	T2
Hansabank	21 071	15 743	9 749	17 770	47 765	58 529
Eesti Telekom	5 078	1 125	44 183	5 056	40 209	4 931
Norma	5 566	2 707	21 514	2 148	41 203	2 275
Saku Brewery	1 420	515	560	268	17 096	167
Merko Ehitus	706	370	144	302	22 492	361
Harju Electricity	489	315	12	196	8 544	95
Baltika	243	245	223	102	N/A.	66
Tallinn Department Store	22	276	55	208	28 005	816

*T1 indicates the average daily turnover during a time period which covers 5 trading days before the cum-dividend date, cum dividend date, ex-dividend date, and 5 trading days after the ex-dividend date (total 12 days) in a particular year; T2 indicates the average daily turnover during the rest of a particular year. In the case of 2002, the time period covers only the first half of the year.

The higher trading activity implies that investors actually use some kind of tax-based strategy. However it is not conclusive evidence. The jump in trading activity may be caused by other factors as well. For example, if a transaction takes place between two

Estonian institutional investors then the reason for this trade is probably not the wish to reduce taxes. Therefore if the increase in trading activity can be justified with tax-base trading, there must be some changes in ownership structure of companies.

Since the strategy is designed for natural persons with Estonian residency, their holdings in dividend-paying companies must increase before the cum-dividend date. The best counterpart for the deal is a nonresident investor and therefore one must expect their holding in companies to fall before the cum-dividend date. In order to find out whether there are really such changes, the ownership structure of listed companies, which shares experienced substantial increase in trading activity around the cum- and ex-dividend dates, were studied (see table 6). Table 6 presents the ownership structure five days before the cum-dividend date and three days after that date. The data in table 6 indicate that in most cases there was an increase in holdings of natural persons with Estonian residency. Although in most cases this increase was relatively small, one most take into the account the fact that the free-float is usually rather small and most companies have majority shareholders who own more that 50% and sometimes even more than 80% of shares. Clearly these changes cannot explain all the trading activity during the period surrounding the cum-dividend date.

Table 6

Ownership structure of listed companies, which shares experienced substantial increase in trading activity around the cum- and ex-dividend dates

(%)

Company	Resident natural persons		Nonresidents		Resident legal persons	
	T-5	T+3	T-5	T+3	T-5	T+3
Eesti Telekom						
2000	**0,38**	**0,41**	**72,08**	**71,98**	**27,54**	**27,61**
2001	**1,26**	**1,50**	**70,55**	**70,16**	**28,19**	**28,33**
2002	**1,52**	**1,64**	**70,24**	**70,12**	**28,23**	**28,24**
Norma						
2000	**12,28**	**13,93**	**73,65**	**72,08**	**14,07**	**13,99**
2001	**13,53**	**14,38**	**74,53**	**74,07**	**11,94**	**11,55**
2002	*12,06*	*12,42*	*81,51*	*77,14*	*6,43*	*10,43*
Saku Brewery						
2000	**9,87**	**10,03**	**87,44**	**86,78**	**2,68**	**3,20**
2002	**9,01**	**9,07**	**89,22**	**89,13**	**1,76**	**1,79**
Merko Ehitus						
2002	*2,74*	*2,98*	*18,45*	*8,85*	*78,81*	*88,17*
Harju Electricity						
2002	*36,67*	*36,66*	*23,77*	*10,57*	*39,55*	*52,77*
Tallinn Department Store						
2002	*5,04*	*6,75*	*21,97*	*7,82*	*72,99*	*85,44*

* T indicates the cum-dividend date; T-5 indicates the five trading days before the cum-dividend date and T+3 indicates the 3 trading days after the cum-dividend date. Since it takes usually 3 trading days before the deal is completed the ownership structure on T+3 has been investigated. If changes in ownership structure confirm the existence of described strategy bold font style is used; if the results indicate the existence of other tax-induced transactions the italic font style is used.

In case of some companies, there is a remarkable shift between holdings by non-resident investors and resident legal persons. In case of Merko Ehitus, Harju Electricity, Tallinn Department Store and Norma the share of resident legal persons increases before the cum-dividend date quite a lot. This change in ownership structure can also be explained by taxation of dividends. If the dividend recipient is a non-resident, there may be a double tax obligation. That means the company who distributes profits will pay the tax on the distribution of profits and the investor who receives the dividends will pay an income tax on received dividends (through withholding). Double taxation will not take place if the recipient is a non-offshore legal person whose stake in the distributing company is at least 25% or if there are benefits deriving from a double taxation avoidance treaty. In this case only the distributor has to pay the tax on the distribution of dividends. If the receiver of dividends is legal person with Estonian residency, there are no taxes associated with distributing the profit. Many Estonian investors use offshore accounts to invest into the Estonian stock market. These changes in ownership structure mean that shares are temporarily removed from those accounts in order to minimize the tax burden.

Conclusions

There are three main conclusions. Since there are differences between taxation of different sources of income (dividends, capital gain) as well as different investors (resident natural person, resident legal person and nonresident), it is possible to create a trading strategy that exploits these differences. If investor knows how to keep trading costs under the control this strategy may be profitable enough to be used in real life. And finally, the actual use of this strategy is increased many times during last three years in Estonia.

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Summary

The Estonian income tax law gives an opportunity to pursue a trading strategy that bases on taxation differences between dividends and capital gain. The strategy is designed for natural person with Estonian residency and consists in buying common shares of the company before the ex-dividend date and selling them right after that date. The counterpart for the deal should be nonresident investor in order to benefit both sides of the deal. The profitability of the strategy depends on the ability to keep trading costs under control. Therefore it is better to use this kind of strategy only with common shares with high liquidity and find ways to reduce trading costs. The analysis of trading activity and changes in ownership structures around the cum- and ex-dividend dates confirms the actual use of the strategy in Estonia.

ACCOUNTING IN CRISIS?

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Enron and WorldCom Corp´s debacle will be considered as the greatest firm's bankruptcy in the history of Corporate America. Already Enron fiasco has unfold some explosive revelations of hidden partnerships, shredded documents, strange accounting practices, and shocking conflicts of interests. Because of the role Arthur Andersen played in the demise of Enron, major changes will be discussed in the accounting business, especially on two fronts: auditor independence and self-policing. These are not just the problems of accounting practices in the USA but in a way, it arises the necessity for discussion in the rest of the world. The problems under greatest attention in USA are following:

1. How much self-regulation (or how much government oversight?) The existing system of self-policing made it difficult to figure out who has been responsible for monitoring the audit quality and independence. It had been administered by AICPA – American Institute of Certified Public Accountant. The POB (Public Oversight Board) was charged for protection of public interests in the oversight of auditors. But the POB relied entirely on the CPA firms for its funding and had no authority to investigate, no subpoena power, and no power to punish infractions.

   New Reform Proposal: An independent Accounting Board. Creation of the new Public Company Oversight Board (PCAOB).The SEC (Securities and Exchange Commission) will appoint the new board and its chairman. The POB would have broad powers to investigate auditors´ lapses in skills, ethics and independence. But how much power? Democrats and Republicans have different opinions. It may not include subpoena power because of concerns of overlapping with the SEC´s jurisdiction. The financial strengthening of SEC /Securities and Exchange Commission/. The president has approved to beef up SEC budget with more than 100 mil USD, to its 487 mil USD already existing budget. The money should help agency investigators accelerate accounting probes. A better and more powerful SEC. With just four large accounting firms left after the withering of Andersen, the SEC should also have:
   - *the power to bust up overly concentrated firms in the future*
   - *the right to launch criminal cases against lawbreakers*
   - *ability to use tools such as wiretaps*
   - *the authority to audit auditors*

2. Ban on consulting activities.
   Accountants have become increasingly dependant on consulting activities. The Economist on Feb 9th, 2001 published following data of income of the big five:
   Global income- auditing and accounting, latest year, %

Andersen	44 %
Deloitte & Touche	34 % / US only/
Ernst & Young	58 %
KPMG	61 % / US only/
PricewaterhouseCoopers	40 %

The income of these audit and accounting activities has therefore increased from 31 % in 1993, to 51 % in 1999 and has been steadily rising. The University of Illinois Bailey found that on average, for every dollar audit fees, clients paid their independent accountants 2.69 USD for nonaudit consulting. Puget Energy, shad the greatest imbalance, paying PWC only 534 000 USD for its audit, but over 17 mil, in consulting fees. Marriott International Inc. had a similar imbalance. It paid Andersen just 1 mil USD for its audit, but more than 30 mil.for information technology and other services.

New Reform Proposal: The bill endorses the SEC to bar accounting firms from most consulting for audit clients. (But the rules would let board audit committees hire a company auditor for consulting work) - can't it go a wrong way?

3. Rotation of auditors.
   Fans of mandatory rotation of auditors argue especially with scandals like Waste Management, where income was overstated by 1.4 billion USD, would never occur if the auditor knew that within a few years would be out and a competitor would reviewing its work. Enron had restated earnings back to 1997, loping off almost 600 mil USD in Profits. Andersen had audited it. It would have never happened if he knew that in a longer or shorter time there would be a new auditor reviewing accounting practices and statements of its predecessor.

   New Reform Proposal: Democrats in the Congress are likely to seek votes to require accountants to rotate lead auditors- not the entire firm –every five years and to ban them from auditing companies if they have employed the CEO or CFO. But opponents say that rotation could create different kind of problems, since new auditors need time to learn about company.

4. Impose more forensic auditing.
   Analysis of auditing effectiveness (organized by POB since the 2000 of forty failures that led to government enforcement actions) had showed that Big Five auditors did not ask why ?

   New Reform Proposal: The introduction of some forensic auditing techniques into the regular audit. Opponents say "forensic" audits might serve more for the purpose of increasing, auditors' prices. Under the new plan the CPA`s may retain the power to write rules for how auditors do their work. The new board should establish its own standard setting group.

5. Limit auditor's moves to companies.
   Andersen as a matter of fact had audited Waste Management from 1971 to 1996.From 1971 until 1997 every chief financial officer and chief accounting officer at Waste Management had previously been an auditor at Andersen.

   Opponents say that many companies have similar rotation between their accounting staff and audit firms and never run into problems. And there will be legal obstacles to limiting people's freedom to work where they like. The author of this article hasn't been able to find any mentioning of handling this problem in the New Reform Proposal.

6. Reform the audit committees.
   In 1999 an SEC blue-ribbon commission recommended that audit committees made solely of independent directors with financial background and necessary expertise. But when the U.S. stock exchanges moved on the recommendations and adopted rules for listed companies they proved to be something entirely different. Under the New York Stock Exchange rules: directors on the company payroll are permitted, former employees and their families can be allowed after three years, and audit committee members with special or significant business relationship can be accepted.

   New Reform Proposal: Boards should have majority of independent directors and that only independent directors serve on audit, compensation, and nominating committees. Supporters propose that audit bodies should have the power to hire and fire auditors and to sign off on any consulting contracts awarded to audit firms. But are there enough talented educated and experienced people to fit these requirements?

7. Accountability at the top.
   Corporate accounting scandals are clearly spooking investors. Expressions made by Kenneth L. Lay -... he had no knowledge of financial engineering at his company ... stressed the call for CEOS to attest to the accuracy of company financial reports. Among others reactions, there is growing rise of voluntary codes of conduct. Self- regulation is important, but it's not enough.

   New Reform Proposal: The executives will be required to personally certify the accuracy of financial statements President Bush had called for doubling jail terms, to 10 years for wire and mail fraud and the Senate on July 10th, approved it. Opponents say that it could lead to producing earnings reports that err on the low side. There are, some more reason for skepticism about how effective the current drive will be. Especially, on the legal part of the reform. Stiffening of penalties for corporate malfeasance and document- shredding, gives the SEC and Justice Dept. new tools to use against crime, but legal experts say, proving intent to defraud is tough for prosecutors in complex business fraud cases, with executives equipped with top defense lawyers.

8. Cleaning up(creating) the accounting rules.
   Accounting has become increasingly complex. Accounting standards have become so complicated that understanding them is more complicated than understanding of basic business processes which they notice in their statements.

   There are some complicated issues concerning accounting:
   - *off-balance* sheet activities. Companies use a variety of permitted devices besides SPES. (Special-Purpose Entities) to push either assets or liabilities off their balance sheets. These include leasing and securitization. For example, an airline can own no planes in accounting terms, yet have long-term leases on them that are all but the as ownership.
   - *derivatives.* Assets are traditionally valued at historic cost (what they were bought for), but financial instruments swing wildly in value from day to day. There are some procedures towards valuing derivatives in real time, but not as

perfect as would be needed. Particular problem lies in the treatment of hedging.

- *revenue recognition.* Companies have considerable discretion over when they book profit or set aside reserves against a future loss. Global Crossing for example, audited by Andersen, leased the capacity to other telecoms carriers and treated this as immediate revenue. At the same time, it leased capacity from other providers and treated this as a capital expense, amortizing it over time.
- *intangible assets.* These account for an increasing proportion of company's total assets, but they are largely excluded from balance sheets- whether they are relatively simple to value (like patents and licenses) or fuzzier like brands and goodwill. Take TYCO for example. Since mid -2000, Tyco has spent some 24 billion USD on acquisitions. The amount of goodwill on Tyco's balance sheet, meanwhile grew from 13.7 billion USD in Sept., 2000, to 34.5 billion USD on March 31, 2001., a rise of 20.8 billion USD. In other words, Tyco spent 24 billion USD on companies it deemed to have less than 4 billion in tangible value.
- *pro forma earnings.* The earnings press releases usually came out 14 to 30 days after a quarter's end weren't required to follow standard accounting principles. That had allowed companies to put the best spin on performance. "Markets are trading on the pro-forma numbers that management presents- and then weeks or a month later, there is another story ".This is true particularly with high-tech companies. For example Priceline .com, an on line travel agency, reported a pro-forma net income of 3.3 mil USD, a sum that converted under GAAP rules into a loss of 1.3 mil USD. Amazon was often criticized for its accounting practices. Amazon surprised analysts in January announcing a 5 mil. USD net profit in its latest quarter, calculated under GAAP rules. In its press release about company figures, it stated two other profits: a) pro-forma operating profit of 59 mil USD and b) pro-forma net profit of 35 mil. USD. The a) profit excludes stock options, amortization of goodwill and restructuring costs. The b) profit ignores –currency gains and losses, and something called the "cumulative effect of change in accounting principle "
- *employee share options.* These are clearly cost of employment, yet they were not included in costs when calculating profits.

New Reform proposal. The cost of stock options be deducted on income statements. A kind, of not too strict oversight of derivatives. (these, unregulated financial instruments which played such a big role in Enron's questionable energy trades). A full income statement prepared according to generally accepted accounting principles. Separation of data on results from major business units. Plain-English statement of management's views on business prospects. The shortening of time for filling quarterly reports to 30 days after the end of period from 45. Annual reports will have to be mailed in 60 days, down from 90.

Setting up the legislation to require CEOs to give up ill-gotten gains- stock options and bonuses based on false earnings.(will Jack Welch, be the standarde setter?). Improvement of corporate governance based on the 10-point plan, laid out by President.

As the U.S. accounting industry ponders the bitter lessons of the Enron and WorldCom debacle, finance professionals around the world are also drawing their own conclusions. These disasters have certainly strengthened the camp of those who favor International Accounting Standards, (IAS) as the standard over U.S. practice, (GAAP). There are naturally differences not as much in philosophy as in the approaches techniques.

While U.S. GAAP follows a cookbook approach- providing auditors with comprehensive checklist of rules to follow. IAS is based on general principles, compelling auditors to enforce the spirit of the law and not just letter. (under this philosophy would auditor, having seen the Enron numbers had asked the questions- why it had shunted assets and liabilities off its balance sheet.). IAS should become mandatory for all publicly traded European Union companies by 2005. The current accounting systems of EU countries often failed to spot troubles. Let us take the case of Lernout & Hauspie Speech Products, the Belgian maker of speech-recognition technology that from 1998 to 2000 used phony transactions to inflate revenues. The company recorded 275 mil, USD, in fictitious sales to companies in Singapore and South Korea. The fact that came to light only because the L & H was listed in the U.S. and was subject to tougher U.S. GAAP regulations. Why won't America recognize IAS? (To list the company shares on the New York Stock Exchange or elsewhere, overseas companies must still produce a reconciliation to GAAP). There are approximately 275 listed European companies. Credibility in America matters to the International Accounting Standards Board, (IASB), a London based private body that is responsible for devising international standards. The IASB inherited its standards from the IASC, a body set up in 1973 that had to take into account all the views of the member countries represented on its board. Because IASC could not get everybody to agree, many standards allow different accounting treatments. The European Commission has proposed that publicly listed companies throughout Europe be required to adopt IAS by 2005, but that proposal hasn't yet been approved by the member states or Parliament. Sweeping changes across Europe, however, aren't likely because its financial markets are fragmented. Europe has yet to finalize a single European market for financial services create a single regulator or adopt common accounting rules.

The most important activities in particular countries are following:

U.K. – Financial Services Authority (FSA) - is U.K.`s all encompassing financial regulator. FSA has already suggested three possible changes. a) it could require that clients change their audit firms every five years, rather than merely rotating the lead partner on an audit every seven years as currently required. b) to require companies to regularly put auditing contracts up for bid. c) the limitation of amount of nonaudit work for client.

GERMANY – unveiled a new voluntary 12- page corporate governance code that calls on company audit committees to be aware of the business links between the company and its auditors, including consulting work, but didn't issue any guidelines on what could be construed as conflict of interest. (Sept. 2001). After many scandals with new industry companies publicly traded on Neuer Markt however announced the finance minister Hans Eichel the creation of the new financial crisis body which should fight accounting malpractices and would have the authority to perform non-announced audits by the suspicious companies. (which has been currently possible just in the Banks).

NETHERLANDS – is expected to adopt new rules that outlaw certain accounting practices, including the averaging over many years of realized and unrealized capital gains on equity and real estate investments.

SPAIN – A bill that would give regulators more power to crack down on audits in which auditors qualify their findings for one reason or another, rather than give the client a clean bill of health. (About 10 % of all companies listed on the Madrid Stock Exchange receives qualified opinions).

Switzerland – even such conservative country in the outrage over ABB`s salary and pension pay-outs to former CEOs Percy Barnevik and Gorden Lindhal can make push toward greater disclosure. Companies there currently don't have to reveal the aggregate pay of the board directors, upper management or the auditing firm, let alone individual salaries.

France, Italy- the issue of corporate governance has yet to come to the discussion. Many of the biggest companies in both countries – still have large family share-holdings (Fiat), family representatives among their senior management, and strong family representation on their boards. In France, it has been claimed that only about one director in five on the boards of public companies is truly independent.

Many countries are not included on my list, but it doesn't mean that there are not changes under way, but that there is no more space in this article to review them. A growing number of developed countries like Singapore, Hong Kong, Australia- have chosen IAS. Partly because its principle-based system places higher demands on its auditors and not so much on the stringent regulatory body.(as it is in U.S.). It could help make IAS preferred accounting standard outside North America. There are many countries in the developing world following either GAAP or IAS. We need to persuade them to clean up their act, and, in the process, their companies` books. Ladies and gentleman I wish you much success in your interesting conference.

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RISK MANAGEMENT AND THE DEVELOPMENT OF BANKING RECONSTRUCTION IN ESTONIA

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Introduction

While reconstructing their banking systems to adjust them to a market economy the transition countries have preferred commercial banking. The main purpose of commercial banks' shareholders and executive management is to increase the value of the company, which requires both a quick rise in the capacity of financial services and a high level of efficiency of the business activities. But in transition economies the macroeconomic risks are significantly higher than in countries with developed market economies. Therefore, the implementation of commercial banking in a transition economy means first of all that banks are very ambitious and subject to risks.

The risk management experience of the staff of commercial banks is short and the systems for risk management are in a forming stage. This suggests that the indicators of effectiveness of banking in a transition economy are volatile, that bank failures occur frequently and that the probability of the occurrence of a banking system crises is very high.

Research on banking reconstruction in Estonia and other Baltic States shows that the major banks of a transition economy will reach the level of developed countries' banking in relation to the banks' trustworthiness, contemporaneity of products and standards.

Development of risk management in the banking of a transition economy

The main task of the management of a commercial bank is to increase the wealth of the bank's owners. Therefore, for the banks listed in the stock market, it is very important to increase their share price, whereas banks not listed in the market have to address only the task of increasing their profit.

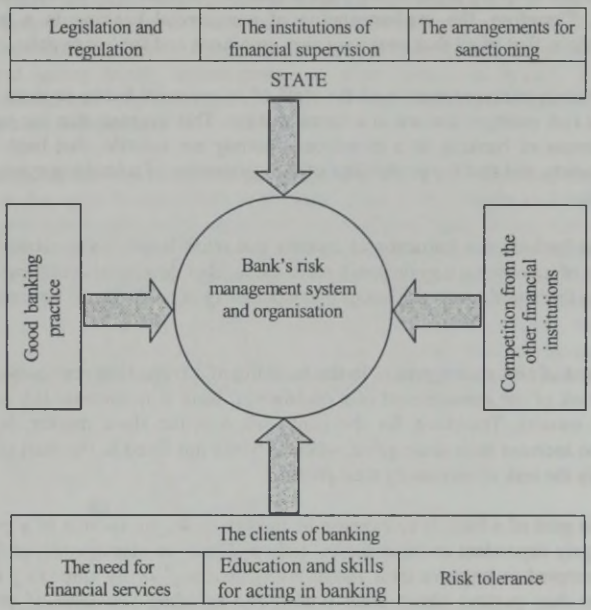
As the main goal of a bank is to increase its market value, the success of a particular bank is largely dependent on other banks' failure. Thus, the management of the bank might be tempted to improve their image with "boasting" or by spreading negative information they possess about other banks. For avoiding this kind of problems, developed countries follow good banking practice, which would eliminate the possibility of such actions. In addition, the managements of the banks have a great temptation of moral hazard. This is mainly caused by the significantly higher financial leverage in banks than in production enterprises. In real sector, the share of equity capital in collaterals is always over 50% but in banking, capital adequacy is around 10%. Thus, relative to the "initial investment" (shareholders equity), the speculative risk in banking may, in case of success, generate quite big profits.

Developments in information technology, the proliferation of financial markets, the blurring distinction between banking and non-banking financial institutions and the continuous barrage of new product innovations have fundamentally changed the landscape of financial services (Boot, 2001). Therefore the banks continually have to confront new risks and also new temptations.

The above reasoning clearly shows that the society cannot accept that banks develop and implement risk management systems by themselves. It is important that there exist supervision of these systems on behalf of the state and market.

Figure 1 illustrates the principle of risk management in banking. The state must lay down legal framework for banking, establish public institutions for financial supervision and guarantee that corrective measures are employed. To protect depositors and ensure the trustworthiness of the monetary system, the legal framework must secure fair competition in the market and prevent excessive risk taking.

Figure 1. The risk management framework in banking



Source: Created by the author.

The tasks of the state are not confined to the above; its initiatives must include establishing the good banking practice and guaranteeing sufficient competition. Thus state authorities have to make sure that there are enough participants in the market and that the financial market is transparent.

It is in the banks' own interest to build up reliable risk management systems and to improve them continuously, as the market develops or deficiencies occur. It is also necessary to have shareholders supervision, internal audit, rules for transaction as well as the orientation of the training of personnel and motivation systems towards raising the quality of the risk management.

The investigation of banking crises in different countries has in most cases led to the finding that risk management systems didn't conform to the needs. For example Caprio and Klingebiel (1996) present three reasons why banking crises have occurred:
1) large macroeconomic shocks (hyperinflation and economic recession),
2) missing and inaccurate legislation (loans, collaterals),
3) big mistakes made by banks in risk management (excessive optimism).

The main reasons behind Nordic banking crises in 1990s were the rapid growth of credit volume and liberalization of banking legislation in 1980s (Koskenkylä, 1995). Already the two above-mentioned studies show that the success of individual banks and banking as a whole depend upon system of risk management and upon the actions taken by the banks in risk management.

Analysis of banking crises in developed and transition countries shows that the crisis roots in transition countries are the same. Due to a deep economic crisis, caused by reconstructions in economy, a credit risk is one of the releasers of a banking crisis in a transition economy. Whereas a banking market is in a stage of formation, the state is the only real rescuer of the banks and depositors in trouble, and the policy of re-capitalising weak banks has led to the re-nationalisation of banks along with increased financial risks to the governments (Borish, Long and Noël, 1995).

Risk management in the countries of transition economy is incomparably more difficult than that in the banking sectors of the countries of developed market economy. It is caused both by a higher risk level, quick changes in risks' structure and too short experience in risk management. But in the whole world the risk management in banks and other credit institutions has become much more complicated compared to early years. One should only remind of the impact of the crisis, started in East Asia in autumn 1997, on the banking sectors The economic situation that has changed and the coming events have brought great interchanges into the line of banking risks in developed countries, and also the new unknown risks. For the transition countries, which came from different type of economic and banking systems, all the risks are new at first and therefore they are more dangerous for a banking sector. Here lies a great danger of the outbreaks of banking crises in those countries.

In transition countries, risk management systems have to be rebuilt because the old system (in banking as a whole as well as in individual banks) was suitable to the needs of the command economy. As the banks as well as firms where owned by the state, possibilities and even the needs of risk management were different: for enterprises there was no danger of bankruptcy and the state banks were authorized to make more prescriptions to the enterprises. In addition to the problems with the launch of new risk management systems, the participants were didn't have a clear vision of the path that should be taken that would also take into account the peculiarities of transition countries. From here arises the task for scientists as well as for practitioners to expand and deepen the research concerning the risk management in banking and paying special attention to new risks and peculiarities of transition countries. For example, a study of lending risks in Bulgarian banks showed that problems exist with evaluation of clients' creditworthiness and potential projects due to the difficulties with getting true information from lenders. There were also difficulties with observing the payment behaviour of clients and with legislation

regulating the collection of bad loans (Koford and Tschoegl, 1997). Data shows that the share of bad loans in the loan portfolio in the year 2000 was ca 11% in Bulgaria, but in many transition countries the ratio was over a quarter (Albania, Yugoslavia, Macedonia, Slovakia and Ukraine) (Transition report 2001).

As the transition countries' banking sectors have by now passed one or several periods of crisis, it is clear that these were caused by macroeconomic shocks and deficiencies in legislation as well as mistakes in banking risk management. This is the conclusion made by Hansson and Tombak in analyzing banking crises in Baltics. They bring out four common reasons for the crisis:

1) unexpected changes in the macroeconomic environment;
2) inadequate enforcement of existing prudential regulations;
3) abuse by "insiders" and
4) reckless expansion of assets and/or credits (Hansson and Tombak, 1996).

Development of risk management in Estonian banking

The reconstruction of banking in Estonia began in 1988 with the establishment of Tartu Kommertspank. Its founders were several state enterprises over Estonia. Tartu Kommertspank searched his market niche and found it in crediting the projects (with higher lending interest rate) for which state banks did not give loans. The second main activity was foreign currency transactions. There was an acute necessity for the latter because in the USSR most of the foreign currency that was earned from the exports had to be sold at a low exchange rate to Vneshekonompank. Tartu Kommertspank made its foreign currency transactions abroad and did not bring it into the USSR (correspondent accounts were in foreign banks) so it could pass unfavorable currency conversion.

The example of Tartu Kommertspank shows that a commercial bank was needed for bypassing the tax system and the prescriptions for credit risk management. The success and usefulness of Tartu Kommertspank were the signals for founding of the other commercial banks in Estonia. The most remarkable example is Ehitus- ja Tööstuspank (Construction and industry bank) that was not given by Moscow under the subordination of Estonia. The management of the bank founded aside the old bank a new one: Tööstuse ja Ehituse Kommertspank. The most valuable part of the old bank (personnel, clientele, accounts) was transferred to the new one, the old one was left only with a large and bad loan portfolio.

As inflation since 1991 accelerated, the capital necessary for founding a commercial bank (5 million roubles) could also be handled by the brances of Tartu Kommertspank and they started to separate from the main bank as independent commercial banks. The same happened to the brances of Agrotööstuspank's in counties, which registered themselves also as independent banks. The central bank was re-established in Estonia in January 1990. The central bank was interested in granting the banking licenses in order to increase its influence and authority. The Banking Act that was accepted in December of 1989 was so general that banks were free to decide on how to plan their development. The old regulation of banking did not suite to the market economy and it was also rejected because it had been designed in Moscow, at the same time the central bank had not launched a new banking supervision, too. It was preoccupied with the preparation of currency reform instead. So the banking in Estonia developed

from 1988 until the middle of 1991 without necessary risk management. Formally, some of the former banking regulation was in force but there was no surveillance and compliance monitoring. The reconstruction of Estonian banking has already been described in more detail (Sõrg, 1995) and therefore we finish the paragraph with a conclusion that commercial banks emerged so fast that official risk management systems could not be launched in time. Another reason for the missing official system was the too optimistic attitude towards the self-regulatory power of market economy.

In addition to the legal regulations that could not be implemented in time for objective reasons, there were problems with disobedience to the regulation already in force. For example, liquidity ratios for banks were established already in 1990, but in the summer of 1992, many Estonian commercial banks, including big banks and banks trusted by public (e.g. Tartu Kommertspank, Balti Ühispank), were in fact illiquid. For this reason, they delayed the clients' money transfers. There were cases of outright fraud. When receiving a payment notice from a client, the banks reduced the money balance of the client's account and issued a document about the transfer. But as there was not enough money on the bank's clearing account in the Bank of Estonia, actual transfer occurred a lot later. In the beginning, money transfers were delayed for 3–4 days, by November 1992 the delays grew already over a month and the delays got ever longer. This was the way to ruin, because the clientele began to understand the "anatomy" of the delays and started transferring their money into more solvent banks. The central bank could not react swiftly on liquidity problems, because there were neither regulations nor financial instruments for helping the banks or for making prescriptions to restore the solvency of banks with short-term liquidity problems. There were also no rules for placing a moratorium on the activities of banks with long-term solvency problems. Naturally, there were also no trained moratorium administrators or committees. For this reason, the decreeing of the first moratorium was delayed until November 17, 1992, when the moratorium was placed to three main banks (Tartu Kommertspank, Põhja-Eesti Aktsiapank ja Balti Ühispank) because of insolvency. Tartu Kommertspank went bankrupt but two others whose liquidity problems were partly caused by the freezing of foreign currency reserves in Russian Vneshekonompank (that also went bankrupt), were merged with Põhja-Eesti Pank and rehabilitated with financial aid from the government and the central bank.

In many cases, the lack of banking regulations or the delayed enforcement of these regulations had its reasons: the inability to foresee certain problems or the inability to swiftly develop necessary regulations. In some cases, however, the resistance and the lobbying by the banks caused the delay. Thus, international accounting standards were accepted in Estonia only in 1994 and the internal audit units were created in 1995.

To summarize, the weak regulations and supervision allowed the banks to take high risk, which in case of success resulted also in high profitability. This is another reason behind the presented statistics that showed the profitability of banks to be higher in transition countries than in developed countries. The decline in profitability, however, can be explained by the gradual increase of the efficiency of regulations and supervision. Because there were very few regulations in the transition banking, there was also no need for offshore banking.

In experts' opinion, the development and enforcement of banking regulations is most advanced in Hungary and Estonia from among transition countries. This has been supported by the completion of the privatization process in banking (Nord, 2000).

In Estonia, the first commercial banks were established in 1988–1989. Although the Soviet law system was still in force, the authority of these regulations was relatively low because of Estonia's struggle towards independence. Also, Soviet laws did not suit very well with a market economy. These were the two major reasons why Estonian banks had to "reinvent the wheel"– to develop their own techniques for risk management. The third reason was definitely the lack of experience and know-how in commercial banks. Sometimes the banks even avoided hiring of people with banking experience because they were considered to be too conservative.

Most of the banks had quite ambitious growth strategies. Growth, was achieved by introducing new ideas, by cheaper service or by cheaply acquiring competitors during banking crises. Hansapank was lucky because they grew mainly during crises. After the first banking crisis in 1993, Hansapank's assets grew from 379 million kroons in the beginning of the year to 988 million kroons in the end of the year. This means that Hansapank's assets grew 2.6 times within one year. The second banking crisis in 1998 gave Hansapank the opportunity to acquire Eesti Hoiupank (Estonian Savings Bank) and this granted them 50% of the banking market. Eesti Hoiupank also planned to become Estonia's largest bank (several other banks had the same plan as well), but the biggest issue of shares in the Baltic states fell into the period of stock market crisis and the management of the bank took the risk of buying half of the emission by themselves. For this purpose, a loan was taken from the Daiwa bank, which was unlawfully guaranteed by Eesti Hoiupank. This kind of activity would not have been permitted neither by law nor by risk management principles.

In April 1993, the Bank of Estonia, scared by the striking banking crisis, announced a stabilization period in banking, during the period the issuance of new banking licenses was frozen and for the existing banks, which held the licenses, the central bank established a schedule of gradual rise in the minimum stock equity capital until ECU 5 mill.

The schedule of raising stock equity capital left the small commercial banks some hope to survive, but due to the crash of Eesti Sotsiaalpank (Social Bank of Estonia) in 1994, which was the biggest bank in the country, the Board of the Bank of Estonia hardened the prudential regulations for banks on 2 September 1994 and passed extra requirements on equity capital.

Thus, by January 1, 1996 the equity capital of a bank whose stock capital was EEK 15 mill, had to be EEK 50 mill. The requirements on the growth of equity capital forced the small banks to merge at the end of 1995 and at the beginning of 1996.

Bank mergers gave a great push to the rise in total assets of the banking sector. Table 3 demonstrates that since 1994 assets have increased in accelerating rate. At the same time in 1997 the growth was even 76.8%, and in previous two years the growth rate was ca 50% a year. Due to such a rapid growth the Estonian banks became the biggest banks by total assets in the Baltics.

Another direction of the commercial banks activities was to absorb into non-banking business. For instance, at the end of 1997 Eesti Maapank, whose share capital had to be recruited by the Estonian Rural Credit Fund, owned seven subordinate establishments and related companies, which dealt with leasing and investing, and with anything else but banking: hotels, processing agricultural products, broadcasting etc. In many countries in continental Europe, control and finance are institution-based; banks and other financial institutions are major shareholders in nonfinancial corporations and perform an active role in supervising and managing them (Pradhan, 1995). It appears that Estonia is not exceptional.

In 1998, the banking sector of Estonia ended a fiscal year in a loss of 0.5 bill. kroons (Table 1). The reasons are not hidden in traditional bank services (depositing, lending, and transactions) but in new and risky financing business. Therefore the following opinion about the banking crisis in Finland will be suitable for Estonia: "In general, the banks responded to the banking crisis by going back to basics, returning from new businesses to old alternatives, rationalizing operations and cutting costs." (Tainio, 1995).

Table 1. Profitability indicators of Estonian commercial banks

	1994	1995	1996	1997	1998	1999	2000	2001
Total assets at the end of a year; billion EEK	10.1	14.9	21.9	38.8	41.0	47.1	57.8	68.4
Annual profit; million EEK	68.7	288.5	517.4	963.1	–498.5	637	625.1	1685.4
Equity multiplier, %	11.7	12.6	10.4	10.7	8.4	6.3	7.1	7.8
Return on equity, ROE; %	5.7	30.5	30.6	34.9	–10.1	9.2	8.4	20.9
Return on assets %, ROA, %	0.5	2.4	2.9	3.3	–1.2	1.5	1.2	2.7
Profit margin, %	0	0.2	0.2	0.2	–0.1	0.1	0.1	0.2
Assets utilisation, %	15.9	15.6	18.2	20.1	11.5	12.0	11.1	11.4
Earnings per share, %	8.6	40.4	47.9	74.3	–29.8	31.6	29.5	n.a.

Source: Bank of Estonia

The main reasons of the banking crisis in Estonia in 1998–1999 were excessive financial risks taken by the banks primarily in the stock exchange. The burst of a market bubble on the Tallinn Stock Exchange, caused by the impact of the financial crisis in the East Asia, started a chain of negative results:

a) banks were not able to realize their stock issues to the estimated extent and prices;
b) stock portfolios, whose profitability had been raised by financial leverage, began to produce losses;
c) liquidity of banks was decreasing as the short-time resources, borrowed from the Western market, had been given out as long-time loans, and it became more and more difficult and expensive to provide new resources;
d) the lop-sided expansion of banks towards the East (especially after the burst of financial wreck in autumn of 1998 in Russia) raised credit risks and produced losses through subsidiaries;
e) depositors lost trust in banks and began to withdraw their money from banks.
f) The polls showed that in the opinion of 25% of the questioned people the reliability of banks had declined, 34% of the people had stopped saving at all and 28% were keeping their savings only at home (EKI test 1998, 1999).

Consequently, some of the reasons for the banking crisis in 1998–1999 were similar to those of the first crisis, i.e. management faults, consisting in underestimating risks and excessive optimism concerning the developments of market. The new key reasons were the impacts from international markets:
a) international stock market crisis;
b) financial crisis in Russia;
c) appreciation of loan resources in international markets and hard terms.

When the economic environment changed in the autumn of 1997, the excessive expansion of securities and loan portfolios, lop-sided orientation towards the Russian market, lending short-time cheap foreign resources as long-time credits, and the other mistakes of the same type began to generate losses to the extent of previous big profits. The top management of Eesti Hoiupank and Tallinna Pank realized almost at the last moment to offer their banks for mergers with stronger banks. But smaller banks, Eesti Maapank, Forekspank, Eesti Investeerimispank (Investment Bank of Estonia), EVEA Pank and ERA-Pank, did not feel the real dangers or did not find buyers and their actions were too late. Eesti Investeerimispank and Forekspank were saved by the support of the central bank, but the rest were added to the list of the failed banks in Estonia.

The essential difference of the banking crisis in 1998–1999 compared to the first one was the fact that the Swedish banks SE Banken and Swedbank were involved in the rescue process of the two major banks of Estonia, Hansapank and Eesti Ühispank. Those banks had just merged with weaker banks and now their shares in the banking market of Estonia were 50% and 30%, respectively. They had also been evaluated by international rating agencies. As they were not able to carry on business independently any longer, the owners and managers had to look for strategic investors. The troubles had lowered the prices, so the international banking found it the right time to come to help. The small banks of Estonia also looked desperately for partners, but as their market share was small and they did not have international ratings, they were not able to draw international interest.

In conclusion, it can be said that the main difference between the two banking crises in Estonia was the fact that the first crisis was a local occasion but the second crisis was of international nature, where the impelling forces came from outside and the normal situation was restored also by foreign support.

Table 1 shows that the profitability of the banks in 1999 and 2000 has remained stable, boom started in 2001. Besides the mentioned investments of capital in the Estonian banking, the Swedish major banks have increased their shareholding in the Hansapank and the Eesti Ühispank. Besides, Optiva Pank was recapitalized by the central bank and then sold to the Sampo-Leonia affiliated group in June 2000.

Estonian banks have by now learnt the lessons of two crises. These crises filtered out the banks with worse risk management systems and only the best survived. The crises taught both big and small banks that it is not secure to rely on help from the central bank. The small banks also learnt that even foreign investors aren't interested in their fate.

The mergers of banks and bankrupts enabled the banks' employees to see the sad consequences of underestimating risks and the bank owners and the management, to leave only the most professional on the payroll. Therefore, it can be said that Estonian banks' personnel is now sufficiently professional to act in case of future financial shocks.

The central bank of Estonia has been much criticized for the untimely recognition of the last banking crisis and late and inadequate measures. This lesson has been learnt. One result of this is the unification of financial supervision institutions (banking, insurance, securities market). The leading banks also have their foreign strategic owners who supervise proper functioning of risk management systems in Estonian banks. All this allows to claim that there is no danger of a banking crisis due to factors internal to Estonia. Also, the ability of Estonian banking sector to resist foreign shocks is significantly better than in 1997–1998 (Table 2). Therefore, the likelihood of a banking crisis in Estonia due to external factors is also quite small.

Already the researchers analyzing the Finnish banking crisis discovered the fact that a banking sector that grows faster than the overall economy will in the long run end up in a banking crisis. The economists analyzing the Japanese banking crisis came up with two reasons for this: deregulation and excess power of the banking sector. These were the reasons why they did not pay very much attention on risk management and regulative measures (Kanaya, 2001). Apparently, this was also the case in Estonia: rapid growth in several years led to excess capacity of banking and also to underestimation of risk management in 1997. The banking crisis in 1998 brought the banking back to the ground from the clouds.

Table 2. Growth indicators of commercial banks in Estonia

Year	Number of operating banks*	Total by the end of the year, bill. EEK		Per bank, bill. EEK		GDP (current prices, bill. EEK)
		assets	share capital	assets	share capital	
1992	41	5.2	0.5	0.13	0.01	14.3
1993	22	6.4	0.4	0.29	0.02	21.8
1994	24	10.1	0.6	0.42	0.03	29.6
1995	18	14.9	1.1	0.83	0.06	40.7
1996	13	21.9	1.4	1.68	0.11	52.4
1997	11	38.8	2.4	3.53	0.22	64.3
1998	6	41.0	6.1	6.83	1.02	73.3
1999	7	47.1	6.3	6.73	0.90	75.3
2000	7	57.8	5.9	8.26	0.84	84.7
2001	7	68,4	6,1			93,4

* incl. branches of foreign banks
Source: Data of Bank of Estonia.

Ten years have passed since the beginning of the reconstruction of transition countries' banking systems. Therefore, risk management experience of the staff of commercial banks is short and the systems for risk management are in a developing stage. This suggests that the indicators of efficiency of banking in a transition economy are volatile, that bank failures occur frequently and that the probability of the occurrence of a banking system crises is very high.

Conclusions

Estonian commercial banks were established 10–12 years ago. 7 banks have remained from the 50 licensed banks, the rest had not been able to continue in the conditions of economic crises independently or have failed. Taking too high risks has also plaid a role in this process.

The analysis of the development of commercial banking in Estonia points out several features, which are typical of the starting period of commercial banking in transition countries.

First. The assets of the banks grow much faster than GDP. The main reasons are the high inflation rate and the expanding development strategy of banks. The member of operating banks is decreasing constantly, therefore the growth rates of the assets of major banks are significantly higher than that of the average.

A rapidly growing bank requires the development of a management system, and the new products and services need the existence of relevant risk management systems. But the development of these systems cannot keep pace with the needs. Hence the imminence of bank failures and the strong probability of a banking system crisis in a transition economy leading to a high banking concentration and on the other hand high risks for depositors.

Second. In all stages of a transition period banks may have a high effectiveness due to taking high risks by the rapid growth of their market shares, a quick implementation of new products and skilful exploitation of the peculiarities of a transition economy. But due to the volatility of the macroenvironment and the differences in the level of risk management the productivity of different banks is very different and the profitability is very volatile. The profitability of basic banking services is more stable and uniform, but that of new products and participation in non-financial businesses is more unstable.

Third. A transition economy selects quickly in quite a rough way the very limited number of prosperous banks and displaces a great bulk of weaker banks from the market, which remained in the major banks' way and were not ready to take sufficiently high risks or were unsuccessful in their risk management. Only the top ambitious business plans can be successfully realized.

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Summary

Research on banking reconstruction in Estonia and other Baltic States shows that the major banks of a transition economy will reach the level of developed countries' banking in relation to the banks' trustworthiness, contemporaneity of products and standards. This is also a claim of global economy for survival, which has been realized generally by the banking of transition economies. But the disadvantage of such kind of development is the upmost concentration of banking as a result of which commercial banks go over to the ownership of foreign financial institutions.

Estonian commercial banks were established 10–12 years ago. 7 banks have remained from the 50 licensed banks, the rest had not been able to continue in the conditions of economic crises independently or have failed. Taking too high risks has also plaid a role in this process.

The analysis of the development of commercial banking in Estonia points out several features, which are typical of the starting period of commercial banking in transition countries: the assets of the banks grow much faster than GDP, in all stages of a transition period banks may have a high effectiveness due to taking high risks by the rapid growth of their market shares, a quick implementation of new products and skilful exploitation of the peculiarities of a transition economy, a transition economy selects quickly in quite a rough way the very limited number of prosperous banks and displaces a great bulk of weaker banks from the market, which remained in the major banks' way and were not ready to take sufficiently high risks or were unsuccessful in their risk management.

PERFORMANCE MANAGEMENT IN THE FACULTY OF ECONOMICS AND BUSINESS ADMINISTRATION AT UNIVERSITY OF TARTU

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The article provides a survey of the system of performance appraisal and compensation in the Faculty of Economics and Business Administration at University of Tartu and the analysis is based on current theories of performance appraisal and management.

Performance appraisal is today an essential part of organisational life, for it helps to justify besides compensation differentiation, for example, promotions, demotions, selection validation and terminations. Performance appraisal system, however, should create a link between organisational and personal goals; shape and change organisational culture towards result-driven climate. (Grote, 2000: 2-3, Longenecker 1999: 18-19) Performance appraisal has been considered a painful annual event where the manager evaluates the performance of employees.

Modern organisations that are based mainly on mental work require universal employees whose goals should be skilfully made congruous with the goals of the organisation and its subdivisions. Therefore, there is a need to change the appraisal systems remarkably more result oriented than so far. In the situation where it is difficult to establish concrete tasks and to appraise their accomplishment, performance management is replacing performance appraisal. This means transition from appraising work effectiveness to managing work effectiveness. (Sparrow, 1998: 119-121) Modern organisations develop compensation systems that are based on performance management. Performance management is a remarkably broader concept than performance appraisal and its object is to improve organisational, functional, sub-divisional and individual performance by linking the above mentioned fields into a whole.

With the determination of work results, several problems occur that are due to the change towards more dynamic and universal tasks and as a result of which it is not always possible to determine the work results and compare them. The emphasis on individual work results also reduces the sense of teamwork and undermines the interests of a group as a whole. (Coughlan, 1999; Yager, 2000)

Payment by results is an effective form of labour compensation by which employees are paid according to their performance. Objective performance appraisal should not concentrate on evaluating employee's personal traits, but their job performance towards goals and it should be the basis for determining compensation (Nelson, 2000: 39-40). The system of payment by results is based on the performance and aims to achieve the fixed goals of the organisation. It is one of the components of labour compensation, based on extra bonuses for the resulting work. Payment of bonuses presupposes performance of higher capacity and quality from that of demanded or an essential activity for organisation. Payment by results presupposes the examination of organisational activity and the creation of detailed information system, also the establishment of clear principles of work motivation and compensation proceeded from goals.

The method's efficiency of application depends on the choice of criteria for performance appraisal and their connection with work, which is usually first of all the amount and quality of the concrete work in different segments of activities and various financially measurable indicators.

Performance management in European universities and colleges

Appraisal and management of performance has recently attracted much attention in European universities and colleges. With increase in the number of students, total costs have risen and, with limited state funding, there is fierce competition for money among various social services, therefore we must turn much more attention to the quality of performance and total quality management (TQM) in higher educational institutions. Higher education is one major service sector that has been slow in transition into quality management. Universities and colleges have generally had a superficial awareness of TQM. (McCarthy, Keefe, 1999)

In addition, Gatfield, Barker and Graham (1999: 239-241) claim that in the last decade the issue of quality has become a significant subject and will continue to be one of the predominant points of debate in higher education. The pursuit of quality is driven by consumer demands for increased standards and performance, and by the needs for organisational excellence. In higher education, the principal method of determining quality has been the managerial approach. However, in recent years there has been rising interest in quality as perceived and determined by the consumer. Hence, it is important to determine the needs and quality demands of international and full-fee paying postgraduate students, for they provide universities with money.

Job performance is not necessarily related to academic standards – universities must establish procedures to monitor the quality of graduates. This can be done through formal survey processes or informal feedback. For example the evaluation of the education in different universities and colleges does not flesh out the reasons why some companies prefer particular graduates. It may be because certain companies need to hire individuals that have received training in a particular academic field. Improving the quality of graduates begins with acknowledging the position of graduates in the labour market and also the demands of possible employers.

The three key functions of higher educational establishments are teaching/advising, research and service. Higher educational establishments continually need to re-evaluate course offerings, testing/grading procedures, admission requirements, student services, and the employee skills and personal traits required by hiring firms. (Willis, 1999) Quantitative data such as exam pass rates, citation levels for research articles, cost per graduate etc. may be available. In other cases, survey data from students or employers might be collected. The more criteria presented, even without rigid detailed scoring scales, the better the evaluation will be. Statistical performance indicators should inform judgement, not replace it.

Quality of universities' placement includes surveying of students about their satisfaction with placement services. The final measure of performance quality of a placement system is the percentage of students who are placed in appropriate

positions quickly after graduation. Quality of placement could also include the number of positions offered and average compensation levels.

Quality of performance in teaching at the higher educational institutions would include measures such as alumni feedback that consists of several questions, for example: What were the most helpful courses? What was least beneficial? What do you need more of? (Mergen, 2000: 345) Teaching does not include only what is done, but how it is done. The possible approaches to teaching and learning should be established with keeping in mind the desired outcomes. Quality of performance in teaching requires that the higher educational institutions prepare the students for their first position as well as provide the basis for performance in future positions.

Quality of teaching depends on the qualifications and research potential of the academic staff. Research outputs, as well as successful teaching, are expected of everyone, additionally they help to keep one's employment. This is also important for the future success of a university, as it helps to attract students of different levels. Hence, following new performance targets became important the number of doctoral students, the number of graduate students, the number of MBA students, the number of research contracts and publications. (Pratt, 1999: 49-50)

Performance appraisal in the Faculty of Economics and Business Administration at the University of Tartu

A case study of the Faculty of Economics and Business Administration at the University of Tartu is exploited in order to promote the managerial decisions. The case study identifies the decentralised university management structure and leadership at the dean level, which enables further development and increases the university's competitive power in the educational market.

From the annual report of the University of Tartu, it is possible to obtain data concerning the academic staff (professors, associate professors, lecturers, assistants and teachers), the number of students, publications and the amount of work equal to one credit point. Unfortunately, official data about teaching done for one credit point in Open University are not available. In co-operation with the educational department, the author succeeded to determine the corresponding indices also in the Open University, which now enables to determine the work-load of one member of the academic staff more accurately (see: table 1).

Work compensation of the academic staff in the University of Tartu is carried out according to the remuneration directive in which the regulations of paying bonuses are also stated. Quality and efficiency of the process of teaching, quality of scientific research, results of innovation, efficiency of management activities, implementation of refresher courses, application of research and development contracts with partners of the university are taken into consideration in the process of evaluating the job efficiency. According to the above-mentioned regulations and the wage budget fund the faculties shape their policy of job compensation.

Table 1

The number of students and the number of credit points given by the member of the academic staff in the University of Tartu (according to the calculations by the author)

Faculty of Tartu University	Number of students	Number of lecturers	Number of students per lecturer	Number of credit points given			Number of credit points per lecturer
				Full-time	Open University	Total	
Faculty of Theology	193	7,5	25,7	4302	0	4302	574
Faculty of Law	809	28	28,9	14448	814	15262	545
Faculty of Medicine	1582	205	7,7	31122	63	31185	152
Faculty of Philosophy	2432	192	12,7	65574	98	65672	342
F. of Biology and Geography	859	55,5	15,5	19129	84	19213	346
F. of Physics and Chemistry	649	62	10,5	14607	155	14762	238
F. of Exercise and Sport	285	31,5	9,0	7071	23	7094	225
F. of Economics and Bus.Admin.	1379	40,5	34,0	26891	4620	33011	778
Faculty of Mathematics	501	52	9,6	15752	64	15816	304
Faculty of Social Sciences	1590	51,3	31,0	34260	0	34260	668

Comparison of average salaries of faculties indicates relatively high differences in wage levels (see: table 2) caused by the different capacity of privately paid teaching, the number of students per lecturer and the amount of credit points per lecturer (see: table 1).

Table 2

The average salaries of the lecturers of the different faculties in the University of Tartu (in EUR per month, according to the calculations by the author)

Faculty	Average salary 1999	Professor	Assoc. Professor	Researcher	Lecture, Major Assistant	Assistant
Faculty of Theology	509	x	x	–	394	–
Faculty of Law	635	1368	x	510	608	328
Faculty of Medicine	450	715	446	357	374	298
Faculty of Philosophy	416	643	378	448	286	258
F. of Biology and Geography	454	665	424	377	298	x
F. of Physics and Chemistry	427	660	411	339	324	287
F. of Exercise and Sport Sciences	433	x	402	304	275	200
F. of Economics and Bus. Administr.	697	1206	619	–	475	316
Faculty of Mathematics	483	720	400	346	357	x
Faculty of Social Sciences	496	729	473	510	387	x

Note: The average salaries of the staff positions with less than 5 persons are marked with x. According to Estonian Compensation Law this data should not be made public.

In compensating the academic staff of the Faculty of Economics and Business Administration in the University of Tartu, the payment-by-performance system is

exploited that is based on the implementation of objectives established by institutes and its subdivisions (chairs). The payment-by-performance system enables to determine the basic salary and bonus to each employee separately, depending on his/her performance. Payment of bonuses presupposes performance of higher capacity and quality from that of demanded and/or an essential activity in organisation, for example the accomplishment of management task, working at unsuitable times (e.g. during a day off), working in Open University etc.

Increment (bonus) is appointed to regular members of the academic staff usually once a year on the basis of the performance of previous period and within the boundaries of the institutes' budget fond, and also in accordance with remuneration regulations. The total salary of an employee consists of basic salary, increment compensation of management, and increment for resulting performance. Head of the institute may on the basis of development conversation correct the performance appraisal according to the qualitative appraisal of not considered aspects of performance. The specific methods of integrated figures of the performance appraisal and its changes are as a rule confirmed by the faculty committee at least one year before their application and the rules are made accessible to all members of the academic staff.

At the same time, the number of articles per person has increased several times, from 2,2 publications in 1996 to 7,5 publications in 1999. This number includes all publications. The number of articles in peer-reviewed international journals is still low compared with others faculties (especially in natural sciences). Therefore, since 1997 the number of publications per person in the Faculty of Economics and Business Administration has been several times bigger than in any other faculty in Tartu University. At present, the aim is to stimulate and encourage the publication of research works in internationally accepted editions. This objective is also supported by the system of performance appraisal, which gives an increased number of points for the publications issued in peer-reviewed international journals.

During the quantitative measurement of performance the quantity and quality of work is appraised mainly in three categories: teaching in full time study programs and Open University; research and publications; management tasks. The evaluation process of publications is based on their content, place of publication and volume. Only the publications of the last three years are taken into account. The management tasks are evaluated according to their capacity and level of responsibility.

In assessing the volume of teaching (workload) it is divided into auditory and individual work. Auditory work consists of the lectures; seminars and tests held according to timetable and volume foreseen in the curriculum. Individual work comprises preparation for the teaching, the supervision of all kinds of research papers, and also the work concerning exams, credit tests and other forms of control. There exist exact instructions for considering the individual work – they include the amount of time provided for various activities. For example: for the supervision of research paper and thesis (bachelor paper) there is provided respectively 6 and 12 hours. The quality of teaching in the Open University is appraised according to the questioning of students.

The average salaries in the Faculty of Economics and Business Administration in the University of Tartu are relatively high. At the same time, the average work capacity of

academic staff exceeds significantly the work capacities of academic staff of other faculties of University of Tartu. This can be seen both by the number of students per lecturer as well as by the amount of credits given during the course (see: table 1).

The wage differential among academic staff in the Faculty of Economics and Business Administration is large. It is caused by large differences in work contribution and as a result of this the received sums of credit points differ several times among the members of the academic staff, who have the same qualifications. For example the maximum and minimum sums of points of professors differ from each other 1.4 times (see: table 3). The same figure for associate professors and lecturers is respectively 4.1 and 4.4 times.

Table 3

The performance appraisal of professors of the Faculty of Economics and Business Administration in the University of Tartu in 1999 (sum of points)

Lecturer	Research	Teaching Full-time Students	Teaching in Open University	Manage-ment Tasks	Job Perfor-mance
Professor	1766	432	436	200	2833
Professor	535	877	936	400	2748
Professor	1477	655	249	400	2781
Professor	1331	908	1430	200	3869
Professor	2283	290	184	800	3557
Professor	2112	317	180	400	3009
Associate Professor	2452	432	378	200	3462
Associate Professor	131	862	453	0	1446
Associate Professor	737	685	566	200	2188
Associate Professor	505	1005	267	200	1977
Associate Professor	444	852	668	150	2114
Associate Professor	465	685	1231	200	2581
Associate Professor	682	747	47	0	1476
Associate Professor	139	619	38	50	846
Associate Professor	998	787	426	600	2811
Associate Professor	272	848	245	200	1565
Associate Professor	359	487	0	0	846

Even bigger differences exist amongst different fields of work. For example the average sum of points deserved by professors for publications during the last three years fluctuates from 535 points up to 2283 points and the same figures of associate professors show even bigger differentiation (see: table 5). It is evident from the table that the professors who are productive in research are engaged in less teaching and vice versa. It is also natural in every respect, because it enables professors to implement their larger knowledge more effectively.

The average salaries of members of the academic staff with different qualifications at the Faculty of Economics and Business Administration differ significantly less than their sums of credit points. For example the differences between maximum and minimum salaries of professors, associate professors and lecturers are correspondingly 1.8,

2.5 and 2.5 times. Although the difference in absolute values is big, it is still not sufficient in the case of associate professors and lecturers who have so different work results.

The system of performance appraisal has enabled the academic staff of the faculty of Economics and Business Administration to increase their work results. For example, the number of publications has increased approximately three times in the second half of the 1990s. At the same time, the remarkable decrease in the number of research publications during the period from 1997 to 1999 has been caused by the standards becoming more strict and demanding. Many publications that were considered academically acceptable up to 1997 were regarded as popular-scientific in 1999 and were no longer accepted as research publications.

The number of points given to the academic staff has risen considerably during recent years, and this is directly related to the new system of performance appraisal. For instance, the sums of points given for research to professors have in average increased three times, which indicate a considerable growth in work effectiveness. Additionally, also the entire sum of credit points has risen for the above- mentioned employees.

The Faculty of Economics and Business Administration received the highest appraisal results in comparison with other Estonian universities and colleges that teach economics. The evaluation of the MBA program and the research that was carried out in the end of the year 2000 by international evaluation expert teams most fluently approved this. The MBA program received full accreditation and research activities were respectively considered excellent. (Business ... , 2000; Research ... , 2000) Both expert teams also approved the credit point system exploited by the Faculty of Economics and Business Administration, and suggested its utilisation also in other universities, colleges and institutions that are concerned with the field of economics. All of this emphasises the importance and necessity of the system of performance appraisal that improves the research and teaching of the academic staff.

Conclusion

The problems of performance management, set in the article, can be solved by refuting the erroneous stereotypes about job performance and compensation in the Estonian public sector, and by following the principles stated in European and American practice and modern compensation theories. Therefore, it is important to develop long run programmes in order to bring out the unreasonable differences in payments for different economics activities and the differences in payments for job positions.

From the annual report of the University of Tartu, it is possible to obtain data on the academic staff, the number of students, publications and the amount of work equal to one credit point. Comparing the average salaries of faculties indicates to relatively high differences in wage levels caused by the different capacity of privately paid teaching, the number of students per lecturer and the amount of credit points per lecturer.

The average salaries in the Faculty of Economics and Business Administration in the University of Tartu are relatively high. At the same time, the average work capacity of the academic staff exceeds significantly the work capacities of the academic staff of

other faculties of the university. This can be seen from both the number of students per lecturer as well as form the amount of credits given during the course.

In compensating the academic staff of the Faculty of Economics and Business Administration in the University of Tartu the payment-by-performance system is used, which is based on the implementation of objectives established by institutes and their subdivisions (chairs). Increment is appointed to regular members of the academic staff usually once a year on the basis of the performance of previous period. The increment has to be appointed within the boundaries of the institutes' budget fond and in accordance with remuneration regulations. The total salary of an employee consists of basic salary, increment compensation of management, and increment for performance.

In quantitative measurement of performance, the quantity and quality of work and is appraised mainly in three categories: teaching in full time study programs and in Open University; research and publications; management tasks. The wage differentials among the academic staff in the Faculty of Economics and Business Administration are large. It is caused by big differences in work contribution and as a result of this the received sums of credit points differ several times among the members of the academic staff, who have the same qualifications.

The average salaries of members of the academic staff with different qualifications at the Faculty of Economics and Business Administration differ significantly less than their sums of credit points. The maximum and minimum salaries of associate professors differ, for example, 2.5 times, but the sum of points differs 4 times.

The system of performance appraisal has enabled the academic staff of the faculty of Economics and Business Administration of the University of Tartu to improve their work results. The evaluation of MBA and research that was carried out in the end of the year 2000 by international evaluation expert teams most fluently approved this. MBA received full accreditation and research activities were respectively considered excellent. The Faculty of Economics and Business Administration received the highest appraisal results in comparison to other Estonian universities and colleges that teach economics. Both evaluation expert teams also approved the credit point system exploited by the Faculty of Economics and Business Administration, and suggested its utilisation also in other universities and colleges that are concerned with the field of economics. At the same time, already new objectives and goals have been set for further improvement of the performance.

In the author's opinion, the exploitation of the following should be considered:

1. The results of the performance appraisal are crucial criteria of compensation and grant the work efficiency of the academic staff. For this reason, during the measurement of performance, the quantity and quality of work has to be appraised mainly in three fields: teaching, research and publications, and management tasks. The foremost objective sources of the quality of teaching are the results of student surveys and these should be used regularly.
2. The differentiation of salaries among the academic staff in the Faculty of Economics and Business Administration is significant. This is caused by big differences in work contribution and considerable point discrepancies both in

research and teaching. Therefore, the differences in compensation are objectively explicable, and should be also continually exploited in the future.

3. The system of performance appraisal and compensation has considerably increased the work efficiency of the academic staff as well as bettered the quality of teaching and research. This shows clearly the importance and necessity of the system of performance appraisal and should be therefore used in the entire university.
4. The different compensation criteria of the academic staff and the determined proportions of teaching and science in chairs and among lecturers should be followed. Additionally, it is important to avoid the excessive orientation to the indicators of quantitative work results, as this has brought about the disproportionate growth of the workload and has speeded up the burnout of the lecturers.

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BANK FINANCIAL ANALYSIS: METHODOLOGY AND EMPIRICS

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Abstract
Banks and other financial institutions are a unique set of business firms whose assets and liabilities, regulatory restrictions, economic functions and operating make them an important subject of research, particularly in the conditions of the emerging financial sectors in the Central and Eastern European Countries (CEECs). Banks' performance monitoring, analysis and control needs special analysis in respect to their operation and performance results from the viewpoint of different audiences, like investors/owners, regulators, customers/clients, and management themselves. Different versions of financial ratio analysis are used for the bank performance analysis using financial statement items as initial data sources. The usage of a novel matrix approach is discussed in the article. Empirical results of the Estonian commercial banking system performance analysis are also presented in the paper.

Journal of Economic Literature Classification number: G21

Keywords: bank performance, financial ratio analysis, matrix approach and model.

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Introductory Remarks

The traditional financial ratio analysis is mainly used for the bank performance analysis. We can find different versions of this approach from various textbooks about banking and financial institutions. Different versions of DuPont financial ratio analysis (see Cole, 1973) seem to be more perspective for banks' and other financial institutions' performance analysis (see, for example, Dietrich, 1996). Recent studies of banks' efficiency and productivity analysis in different countries can be taken as lessons for the Estonian case - see, for example, Hardy and di Patti, 2001 (Pakistan lessons); Spiegel, 1999 (Japaneze experience); Berger and Mester, 1999; Van Greuning and Bratanovic, 2000; and Stiroh, 2000 (US experience); Rebelo and Mendes, 2000 (Portuguese experience); Hasan and Marton, 2000 (Hungarian lessons); Andersen *et al.*, 2000 (Finnish experience); ECB, 1999 and 2000 (EU banks' experience). Berger and Humphrey (1997) presented a review of 122 studies in 21 countries about the efficiency and productivity of financial institutions. There exist already also studies on the banking sector development in transition economies, see Zoli, 2001; Barisitz, 2001; Reininger et al., 2002.

Various new approaches have been developed for quantifying various risks and allocating capital. In recent years, banks have adopted some innovative performance metrics such as, for example risk-adjusted return on capital (RAROC) and economic value added (EVA) to measure complex trade-offs between risk and return on the level of individual banks (see Kimball, 1998). Park and Peristiani (2001) focused on the relationship between book value, market value and a risk measure, and developed a semi-parametric model for estimating the critical level of bank risk. Niinimäki

(2001) developed a dynamic model to explain the high failure risk of new and rapidly growing banks.

The focus of financial analysis for the management of any bank should be on the efficiency of performance of the bank measured from the viewpoint of investors/owners' income maximisation. Various measures of rates of return are used mainly for that purpose. In this article, we present one of the possible approaches to such financial analysis using the novel matrix approach which is presented also in Vensel (1997; 2001); Aarma and Vensel, (1998).

Methodology of the Matrix Approach

It is possible to use the matrix model to present and analyse interrelations between various economic and financial indicators. On the basis of n quantitative indicators Yi ($i = 1, 2, \ldots, n$; n - the number on initial quantitative financial indicators) it is possible to define $n(n - 1)$ qualitative indicators, for example financial ratios

$$x_{ij} = \frac{Y_i}{Y_j} (i, j = 1, 2, \ldots, n; i \neq j) \qquad (1)$$

which form the $(n \times n)$ square matrix

$$\mathbf{X} = \begin{vmatrix} x_{11} & x_{12} & \vdots & x_{1n} \\ x_{21} & x_{22} & \vdots & x_{2n} \\ \cdots & \cdots & \cdots & \cdots \\ x_{n1} & x_{n2} & \vdots & x_{nn} \end{vmatrix} = \{x_{ij}\} \qquad (2)$$

and which we call the matrix model of the studied phenomenon.

We can draw two important conclusions from these features of the matrix model (2):

- as the symmetric square matrix (2) consists of two triangular matrices which are "mirror reflections" of each other (contain elements which are reciprocal to each other), the financial (or other economic) information needed for the analysis is presented only in one triangular matrix;
- as the square matrix (2) consists of row and column vectors in linear dependence, it is sufficient for a generalised estimate of the studied phenomenon, to take into consideration only one vector.

The first of these conclusions is important for the component or decomposition analysis of bank performance, and we take under observation only one triangular matrix focusing on the study and analysis of interrelations between the elements/financial ratios of the matrix model. Further steps of analysis depend on how many and which initial quantitative indicators from the balance sheet and income statements of the bank to choose for the formation of the matrix model, and which sequence to follow when including the initial indicators into the model. If we choose to start with the output or results indicators according to their degree of "finality", and to end with the input or resource indicators by their "preliminarity", we receive the matrix model which consists of two triangular matrices:

- matrix of effectiveness, where the elements/financial ratios reflect various aspects of the efficiency of the bank performance;
- inverse matrix of effectiveness, which consists of the reciprocals of the efficiency indicators/financial ratios.

A financial analysis of any bank starts with obtaining the initial financial data. If to follow the principles discussed here, we get the following sequence of the most important initial quantitative financial indicators:

(1) Y1 - earnings after taxes, EAT;
(2) Y2 - earnings before taxes, EBT;
(3) Y3 - net interest revenue, NIR;
(4) Y4 - interest revenue, IR;
(5) Y5 - total operating income, TOI;
(6) Y6 - earning assets, EA;
(7) Y7 - book value of equity, BE;
(8) Y8 - total assets, TA.

The matrix model for a bank performance analysis is presented in Table 1.

Table 1. The Matrix Model for Banks Performance Analysis

	Y1, EAT	Y2, EBT	Y3, NIR	Y4, IR	Y5, TOI	Y6, EA	Y7, BVE
Earnings Before Taxes, Y2, EBT	x21=Y1/Y2 Net Earnings to Earnings, NEER *						
Net Interest Revenue, Y3, NIR	X31=Y1/Y3 Net Earnings to NI Ratio, NENIR	x32=Y2/Y3 Earnings to NI Ratio, ENIR					
Interest Revenue, Y4, IR	x41=Y1/Y4 Net Earnings to Interest, NEIR	x42=Y2/Y4 Earnings to Interest, EIR	x43=Y3/Y4 Net Interest to Interest, NIIR				
Total Operating Income, Y5, TOI	x51=Y1/Y5 Net Earnings to TOI Ratio, NETIR *	x52=Y2/Y5 Earnings to TOI Ratio, ETIR	x53=Y3/Y5 Net Interest to TOI Ratio, NITIR	x54=Y4/Y5 Interest to TOI Ratio, ITIR			
Earning Assets, Y6, EA	x61=Y1/Y6 Net Return on Earning Assets, NREA	x62=Y2/Y6 Return on EA, REA	x63=Y3/Y6 Net Interest on EA, NIEA (NIM) *	x64=Y4/Y6 Interest on EA, IEA *	x65=Y5/Y6 Total Income on EA, TIEA		
Book Value of Equity, Y7, BVE	x71=Y1/Y7 Net Return on Equity, NROE *	x72=Y2/Y7 Return on Equity, ROE *	x73=Y3/Y7 Net Interest on Equity, NIOE	x74=Y4/Y7 Interest on Equity, IOE	x75=Y5/Y7 TOI on Equity, TIOE	x76=Y6/Y7 EA to Equity Ratio, EAER	
Total Assets, Y8, TA	x81=Y1/Y8 Net Return on Assets, NREA *	x82=Y2/Y8 Return on Assets, ROA *	x83=Y3/Y8 Net Interest on Assets, NIOA	x84=Y4/Y8 Interest on Assets, IOA	x85=Y5/Y8 TOI on Assets, TIOA *	x86=Y6/Y8 Earning Assets Ratio, EAR *	X87=Y7/Y8 Equity Multiplier, EM = 1/LEV *

Results of Using the Matrix Model

The initial quantitative financial indicators of the Estonian commercial banking system needed for using the matrix model are presented in Table 2. The effectiveness matrix of Estonian commercial banks with all the above-described financial ratios is presented in Table 3. Actually, four different matrixes are presented in Table 3. The key for reading the financial information in Table 3 is as follows:

(1) definition of the corresponding financial ratio;

(2) - (3) levels of corresponding financial ratios in 1994 and 2001;

(4) relative change in the corresponding financial ratio as the growth rate, 2001/1994;

Table 2. Initial Financial Indicators for the Matrix Model (EEK m)

Financial Indicators	1994	1997	2000	2001	2001/94	2001/00
Y1, Earnings After Taxes, EAT	68.7	964.1	625.1	1685.4	24.181	2.696
Y2, Earnings Before Taxes, EBT	83.6	1070.3	625.1	1705.8	20.404	2.729
Y3, Net Interest Revenue, NIR	586.7	1444.1	1932.3	2182.4	3.720	1.129
Y4, Interest Revenue, IR	878.6	2661.6	3744.2	4308.1	4.903	1.151
Y5, Total Operating Income, TOI	1307.7	4354.2	5575.0	6837.4	5.229	1.226
Y6, Earning Assets, EA	6027.3	24513.2	42019.6	53544.0	8.884	1.274
Y7, Book Value of Equity, BVE	673.2	3031.5	7280.7	8179.0	12.149	1.123
Y8, Total Assets, TA	8240.7	30328.5	52444.9	63115.0	7.659	1.203

Source: Bank of Estonia, Annual Reports

The most important element/financial ratio of the effectiveness matrix is x_{81}, which forms the following multiple factor system:

$$x_{81} = x_{21} \times x_{32} \times x_{43} \times x_{54} \times x_{65} \times x_{76} \times x_{87} \quad (3)$$

or substituting with the definitions of corresponding financial ratios

$$NROA = U \times ENIR \times NIIR \times ITIR \times TIEA \times EAER \times EM =$$

$$= \frac{EAT}{EBT} \times \frac{EBT}{NIR} \times \frac{NIR}{IR} \times \frac{IR}{TOI} \times \frac{TOI}{EA} \times \frac{EA}{BVE} \times \frac{BVE}{TA} = \frac{EAT}{TA} \quad (4)$$

So far, we have demonstrated only one possibility of using the matrix model for the banks' performance analysis. There are a number of other possibilities to develop various other factor systems, to determine the absolute influence of changes in the respective financial ratios on the change of different quantitative financial indicators, to compose multi-factor aggregate index-numbers in the case of de-aggregated initial information, etc.

The initial quantitative financial indicators needed for the development of the banks performance efficiency matrix, may be divided into two groups by their economic substance:

- results or output indicators of the bank activities, which one may take from the income statement: earnings after taxes (EAT), earnings before taxes (EBT), net interest revenue (NIR), interest revenue (IR), total operating income (TOI);

- resource or input indicators of the bank operating, which one may take from the balance sheet: earning assets (EA), book value of equity (BVE), total assets (TA).

We may compare the bank with any other business firm, which uses available resources/production factors/inputs (equity and borrowed external funds) for producing something useful, i.e. during the bank operating, certain inputs are transformed into certain outputs. The bank's operating result is a production of specific financial services during the financial intermediation: credit services, securities services, transaction proceeding services, asset management services, information and financial advice offering services. All these financial services in money terms are expressed in the bank management revenues and income.

Table 3. The Effectiveness Matrix of the Estonian Commercial Banking System (1994-97)

	EAT 68.7 1685.4 24.181	EBT 83.6 1705.8 20.404	NIR 586.7 2182.4 3.720	IR 878.6 4308.1 4.903	TOI 1307.7 6837.4 5.229	EA 6027.3 53544.0 8.884	BVE 673.2 8179.0 12.149
EBT 83.6 1705.8 20.404	NEER 0.8218 0.9880 1.202						
NIR 586.7 2182.4 3.720	NENIR 0.1171 0.7723 6.595	ENIR 0.1425 0.7816 5.485					
IR 878.6 4308.1 4.903	NEIR 0.0782 0.3912 5.003	EIR 0.0952 0.3960 4.159	NIIR 0.6678 0.5066 0.759				
TOI 1307.7 6837.4 5.229	NETIR 0.0525 0.2465 4.695	ETIR 0.0639 0.2495 3.904	NITIR 0.4486 0.3192 0.712	ITIR 0.6719 0.6301 0.938			
EA 6027.3 53544.0 8.884	NREA 0.0114 0.0315 2.761	REA 0.0139 0.0319 2.292	NIEA 0.09734 0.04076 0.419	IEA 0.1458 0.0805 0.552	TIEA 0.2170 0.1277 0.588		
BE 673.2 8179.0 12.149	NROE 0.1020 0.2061 2.020	ROE 0.1242 0.2086 1.679	NIOE 0.8715 0.2668 0.306	IOE 1.3051 0.5267 0.404	TIOE 1.9425 0.8360 0.430	EAER 8.9532 6.5465 0.731	
TA 8240.7 63115.0 7.659	NROA 0.0083 0.0267 3.217	ROA 0.01014 0.02703 2.665	NIOA 0.0712 0.0346 0.486	IOA 0.1066 0.0683 0.640	TIOA 0.1587 0.1083 0.683	EAR 0.7313 0.8483 1.160	EM 0.0817 0.1296 1.586

Source: Author's calculations

In accordance with the classification of the initial financial indicators into two groups, the efficiency matrix of the bank performance analysis consists of three partial matrices:

- triangular matrix, where the elements are financial ratios characterising proportions among the quantitative output indicators, and which are by their nature co-ordination ratios: NEER, NENIR, ENIR, NEIR, EIR, NIIR, NETIR, ETIR, NITIR, and ITIR - we named this triangular matrix as "output matrix";
- triangular matrix, where the elements are financial ratios reflecting proportions among the quantitative input indicators, and which are also typical co-ordination ratios: EAER, EAR, EM - we named this matrix as "input matrix";
- quadrate matrix, where the elements are financial ratios characterising proportions among different quantitative output and input indicators, i.e. these are typical intensity ratios, or traditional output/input-type efficiency indicators: NREA, REA, NIEA, IEA, TIEA, NROE, ROE, NIOE, IOE, TIOE, NROA, ROA, NIOA, IOA, and TIOA - we named this matrix as "output-input matrix".

The quadratic output-input matrix is the most important partial matrix of the bank performance matrix model because elements of that matrix are typical output/input-type financial ratios, i.e. efficiency indicators. There are 3×5=15 financial ratios (from which almost half are frequently used) in the output-input matrix presented in Table 3.

The net return on assets (NROA = EAT/TA) is the leading element of the whole efficiency matrix, which forms the following multiple factor system from all elements of the main diagonal

$$NROA = NEER \times ENIR \times NIIR \times ITIR \times TIEA \times EAER \times EM =$$

$$= \frac{EAT}{EBT} \times \frac{EBT}{NIR} \times \frac{NIR}{IR} \times \frac{IR}{TOI} \times \frac{TOI}{EA} \times \frac{EA}{BVE} \times \frac{BVE}{TA} = \frac{EAT}{TA} \qquad (5)$$

We may check easily the factor system (5)

1994: $0.8218 \times 0.1425 \times 0.6678 \times 0.6719 \times 0.2170 \times 8.9532 \times 0.0817 = 0.0083$

2001: $0.9980 \times 0.7816 \times 0.5066 \times 0.6301 \times 0.1277 \times 6.5465 \times 0.1296 = 0.0267$

growth rate: $1.202 \times 5.485 \times 0.759 \times 0.938 \times 0.588 \times 0.731 \times 1.586 = 1.429$

Naturally, it is possible to aggregate or de-aggregate elements/financial ratios included in the multiple factor system (5), to include elements from the inverse matrix of efficiency, etc. i.e. in principle, it is possible to develop a number of different factor systems depending on the tasks of analysis and established bottlenecks in the bank activities, operating and performance. It is also possible to start with the analysis of other financial ratios in the output-input matrix.

Now we turn back to the analysis of the leading element of the output-input matrix, i.e. to the analysis of NROA dynamics. It is suitable to aggregate financial ratios from the output matrix and from the input matrix

$$NROA = NETIR \times TIEA \times EAR = \frac{EAT}{TOI} \times \frac{TOI}{EA} \times \frac{EA}{TA} = \frac{EAT}{TA} \qquad (6)$$

Only one traditional output/input-type efficiency indicator, TIEA = TOI/EA, is added to the leading elements of the output matrix and input matrix. Results are as follows:

1994: $0.0083 = 0.0525 \times 0.2170 \times 0.7313$
2001: $0.0267 = 0.2465 \times 0.1277 \times 0.8483$
growth rate: $3.217 = 4.695 \times 0.588 \times 1.160$

Hence, the growth of net return on assets (NROA = EAT/TA) by more than three times was caused by the influence of the following changes: favorable changes in the proportions of banks' output indicators (which are expressed in the 4.695 times rise of the level of NETIR) were the main factor of the very substantial rise of NROA); there was also a small positive change in the proportions of banks' input indicators, which became apparent in the 16% rise of EAR; the only typical and traditional output/input-type efficiency indicator in the factor system (6), TIEA = TOI/EA, decreased substantially (growth rate 0.588).

Concluding Remarks

The banks' performance analysis is an important issue in the conditions of transition economies in the CEECs because the financial sector could play the key role in a successful transition. The balance sheet and income statement of the bank is the major sources for carrying out the bank performance analysis. The matrix approach, which enables to follow interrelations between different financial indicators, seems to be quite perspective.

Some empirical results of the usage of the matrix model for the Estonian commercial banking system in 1994-2001 are presented in the article. As the Estonian banking system is developing rapidly, both input and output quantitative financial indicators have increased substantially during the last years. There was an overall falling of the market-determined interest rates in the Estonian banking market, the interest spread decreased substantially, which influenced the dynamics of various discussed financial ratios. The rise of the Estonian commercial banking system performance efficiency, which is revealed in the increase of the rate of return indicators such as return on assets (ROA) and return on equity (ROE), was caused mainly by the changes in the proportions between output indicators (for example, the banks' burden has decreased substantially).

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PANGA FINANTSANALÜÜS: METODOLOOGIA JA EMPIIRIKA

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Kokkuvõte

Pangad ja muud finantsasutused kujutavad endast ärifirmasid, mille varad ja kohustused, regulatiivsed piirangud, majanduslikud funktsioonid ja toimimine on üpris erilaadsed ja vajavad spetsiaalset analüüsi. Pankade tegevuse analüüsist, kontrollist ja monitooringust on huvitatud paljud osapooled, nagu näiteks omanikud/aktsionärid, kliendid, reguleerijad, ja loomulikult ka panga juhtkond ise. Panga tegevuse analüüsiks kasutatakse põhiliselt finantssuhtarvude analüüsi mitmeid versioone, kasutades bilanssi ja kasumiaruannet algandmete hankimiseks. Selles artiklis on kasutatud suhteliselt uudset maatrikskontseptsiooni ja –mudelit Eesti pangasüsteemi kui terviku tegevuse analüüsimiseks aastatel 1994-2001. Empiirilisest analüüsist selgus, et kuigi paljud finantsnäitajad on vaadeldud ajaperioodi jooksul nominaalselt kasvanud väga kiiresti, ei ole pankade tegevuse efektiivsust peegeldavad finantssuhtarvud seda mitte alati teinud, ning põhiliselt on tegemist väljundnäitajate omavaheliste proportsioonide märkimisväärsete muutustega.